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# Columbia University

IN THE CITY OF NEW YORK

## Report of the Dean of the School of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1942



MEDICAL CENTER  
168TH STREET AND BROADWAY  
NEW YORK

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# SCHOOL OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1942

*To the President of the University*

SIR:

I have the honor to submit the annual report of the activities of the School of Medicine for the academic year 1941-42.

Four hundred and twenty-eight students were enrolled in the regular course of instruction for the degree of Doctor of Medicine, distributed as follows:

First year . . . . .	126
Second year . . . . .	111
Third year . . . . .	95
Fourth year . . . . .	96

There were 1,371 applicants for admission for the coming year. The students had prepared in 224 different colleges and universities. The class admitted during the year had prepared in thirty-eight colleges. The graduating class obtained internships in forty-seven different hospitals in all sections of the country. Fifty-seven students who were registered under the Graduate Faculties of the University took their work at the Medical School during the year. Instruction in the medical sciences was provided for the students of the School of Dental and Oral Surgery. Nineteen students were enrolled in the DeLamar Institute of Public Health. The enrollment in the Department of Nursing was as follows:

First year . . . . .	100
Second year . . . . .	80
Third year . . . . .	58

At Commencement there were awarded ninety-five degrees of Doctor of Medicine, twenty of Master of Science (public health), thirty-two of Bachelor of Science (nursing), and ten of Doctor of Medical Science.

There were 198 residents in the hospitals affiliated with the graduate medical program, of whom thirty-four were registered for the degree of Doctor of Medical Science.

The Janeway Prize, given to the member of the graduating class "ranking highest in efficiency and ability," was awarded to Alfred M. Duschatko. The William Perry Watson Prize, awarded for "outstanding work in the study of diseases of children," was given to Lewis K. England. Myron E. Carmer was awarded the Thomas F. Cock Prize for a thesis entitled "Pulmonary Embolism and Infarcation as a Complication of the Puerperium." The Harold Lee Meierhof award for "conspicuous effort in pathology" was given to Philip M. West.

We are deeply grateful for the continued scholarship aid amounting to over \$40,000 which enabled us to grant 116 students awards averaging \$340.

The employment office of the School continues to aid an increasing number of students in securing work throughout the school year and in vacation periods. Two hundred and fifty-four steady positions and ninety-five temporary jobs (exclusive of twenty-one positions provided by the National Youth Administration) were filled this year. The total of 370 jobs filled this year clearly indicates the service rendered to the student body. Approximately 50 percent of the student body seek gainful employment while they are in school.

In addition to the special lectures reported in connection with the departmental activities the following lecturers have added to the educational program of the School: Dr. Henry Bernard Perlman, University of Chicago; Dr. Hallowell Davis, Harvard University; Dr. Elmer Augustine Culler, University of Rochester; Dr. René Dubos, Dr. Leo Michaelis, and Dr. Moses Kunitz, from the Rockefeller Institute for Medical Research; Dr. Dugald Brown, New York University; Dr. Mark Schoenberg, Knapp Memorial Hospital; Dr. Eduardo Garrido-Morales, School of Tropical Medicine, Puerto Rico; and Dr. Richard E. Shope, of the Rockefeller Institute.

The staff of the Student Health Service is comprised of Professor Alexander B. Gutman, physician-in-charge, Dr. William H. Gillespie, Dr. Augustus Gibson, and Dr. Robert A. Kritzler. Dr. Gutman was available for consultation at stated office hours daily throughout the academic year and for emergencies in the school and hospital buildings, at Bard Hall, and in the vicinity. A total of 1,075 office visits was made by all students (this does not include visits for routine physical examina-

tion). Approximately three fourths of the entire medical student body applied at least once at these consultation hours.

The physical status of every medical student and every dental student was checked during the first three months of the academic year. X-rays of the chest were obtained for every first year and fourth year medical student and for every first year and fourth year dental student. None of the first year medical or dental students was found to have x-ray or clinical evidence of active pulmonary tuberculosis. No x-ray or clinical evidence of active pulmonary tuberculosis was found in the fourth year medical class. The expense of these systematic class surveys is borne by the School, as part of our policy for the early detection of tuberculosis among students.

While there were a great many minor ailments, comparatively little serious illness developed during the year. There were no deaths in the student body. The Student Health Service received full coöperation from all clinic divisions. In general, the machinery for detection, disposition, and management of illness in the student body functioned smoothly. Due to the almost complete depletion of the Student Health Service Staff necessitated by the war, it will not be possible to continue all branches of the service.

The Student Health Service coöperated to the fullest extent with the various war services as regards health transcripts, Wassermann tests, urinalyses, and various special laboratory tests requested. Minor defects which were the cause of rejections were corrected whenever possible.

The program of graduate medical education, designed to provide training in the basic medical sciences as well as clinical experience in the medical and surgical specialties for residents in affiliated hospitals, was continued. Among those participating in this program, thirty-four were registered as candidates for the degree of Doctor of Medical Science and ten were awarded the degree. As partial fulfillment of the requirements for the degree the candidates submitted dissertations on a variety of topics, including the effects of excess dietary sulfur-containing amino acids, the effect of position and activity on serum proteins, wound healing, parasympathetic sensitization, and the determination of cephalopelvic disproportion by x-ray pelvimetry.

The prospect for continuation of this program during the war is gov-

erned by the demands for young medical men in the armed services. The need for young physicians in the military services is so great that few men who have completed basic internships will remain available for graduate training in civilian hospitals. The few who may remain will be required to assume increasing responsibilities for the care of patients, and there will be little time for study in the basic medical sciences. Fortunately, over a period of ten years the program has been well established and can be rejuvenated without difficulty at the end of the war.

The interest of practicing physicians in short continuation courses, offered in affiliated hospitals and at the New York Post-Graduate Medical School, has diminished to a lesser extent than was anticipated at the outbreak of hostilities. Many physicians have left civilian practice to enter the military services, and those remaining have found it necessary to bring themselves up to date in phases of medical practice, responsibility for which had been assumed formerly by their colleagues. Others have taken courses in order better to prepare themselves for military service.

One thousand and twenty physicians were registered for postgraduate study during the year. The increasing importance of the University as a center for postgraduate medical study is indicated by the fact that they came from forty-one states, three territories, and eighteen foreign countries. Forty-six Latin American physicians were registered for courses, and at least as many others visited the clinics on a more informal basis.

Rapid development of defense industries has necessitated expansion of facilities for promotion of industrial hygiene. In order to meet the demand for physicians trained in this field, a postgraduate course was offered at the DeLamar Institute of Public Health and was well attended. Two groups of Naval medical officers, assigned by the Surgeon General, United States Navy, were also registered for a similar but more extensive course in industrial hygiene at intervals during the year.

The impact of the war puts upon American education a new group of vital responsibilities in the world struggle, and it subjects our educational institutions and their objectives to grave dangers. The situation calls for wise and thoughtful analysis and guidance. Our problems are related directly to the whole question of national man power and, in particular, to the maintenance of an adequate supply of physicians for the military and civilian population.



Early in 1941 under the leadership of the Association of American Medical Colleges' Committee on War Activities, of which the Dean of the School of Medicine is chairman, the accelerated program for medical schools was inaugurated. The program has been heartily endorsed by all Government authorities. By avoiding the necessity for the deferment of individuals who in the normal medical course enjoyed vacations of approximately sixteen months, the plan has represented a real contribution to the national program by making possible the graduation of 5,000 more doctors than would normally be graduated in the next three years. Beginning July, 1942, we plan to admit students every nine months.

There are several related problems in the accelerated program. The necessary adjustments concerning state licensure have been presented to the Federation of State Medical Boards and to individual state boards. In all states in which licensure is governed by regulations the adjustment has been easily made, and the coöperation of state boards everywhere has been complete. In a few states, where it is necessary, amendments to the medical practice acts have been introduced.

The financing of students through the accelerated medical course has been aided by Federal loans. The generous contribution from the W. K. Kellogg Foundation at the outset of the accelerated program provided scholarships and loans to students who otherwise would have found it difficult if not impossible to meet their obligations. This timely aid from the W. K. Kellogg Foundation was greatly appreciated by this school and by all other medical schools which participated in similar grants.

The integration of the graduation of students on the accelerated program with the twelve-months internship requirement (which must be completed within twelve months of graduation) of the Army and Navy Medical Corps has necessitated a certain amount of adjustment in hospital schedules and, in some instances, inconvenience in arrangements. These have not been serious, however, and in practically all instances the necessary adjustments have been made. This has been possible particularly in the light of the reduction in assistant residents and residents and also due to the fact that there has been for some years a total of approved internships in excess of the number of graduates each year.

Since February, 1942, by order of the General Staff of the Army, pre-medical students who have been accepted for admission to medical schools have been eligible for commissions in the Medical Administrative Corps

in the same manner as medical students. The Navy has followed the same procedure. In the College of Physicians and Surgeons every eligible male student is commissioned either in the Army or Navy and the same situation obtains in most medical schools throughout the country.

The likelihood that the draft age will be lowered introduces a number of problems, including the continuance of a supply of medical students. The educational leaders of the country, through the American Council on Education and various professional organizations, have been considering the problems and have made certain suggestions. There is general agreement in the group that the resources of the colleges, universities, professional and technical schools should as rapidly as possible be converted into the all-out war effort and that all students, men and women, must prepare themselves for active participation in the war effort and in the necessary supporting civilian activities. It is agreed that all able-bodied male students should plan to go into the armed forces. Those not serving in the armed forces should be preparing themselves to make the most effective contribution to the war program.

In order to carry out the general objectives sought in relation to students physically qualified for induction there are at least two general plans that might be followed. The first is to grant occupational deferment to selected students, which would permit them to continue their education through a period of college preparation and professional training agreed upon by the Army, Navy, and other governmental agencies on the one hand, and by the educational institutions on the other. This plan, which has certain advantages, would not provide for the financing of the students on the accelerated program which seems to be essential in the all-out war effort. Some have felt that there would be great variations among local boards in the granting of such occupational deferment for students. Students without financial means might be excluded from participation in the educational program except through Federal loans, which would have to be renewed annually. The second possibility is the creation of some type of enlisted corps for the Army, Navy, Coast Guard, and Marine Corps.

Among the suggestions is the plan for the creation of Collegiate Training Corps for the Army, Navy, Marines, and Coast Guard. If this plan is carried out these corps will be made up of young men who have been

inducted through selective service into the armed forces and who have then been chosen during the period of their basic military training of approximately thirteen weeks to enter college for a period of professional or specialized training and education.

The procedure for the selection of candidates for these several corps and their retention for further training has not been announced, but it is expected that it will be conducted by the appropriate military authorities in coöperation with the educational institutions. The men, under such a plan, would be under military discipline, in uniform, and on government subsistence and pay. Since the men in the Collegiate Training Corps will be selected because of their ability and aptitude and without regard to their ability to pay for a higher education, many promising students will be given educational opportunities which otherwise would not be available to them.

It is planned that as far as possible the inducted young men may apply to any university, college, or junior college which will require such candidates to undergo specialized and general officer training of a standard approved by the military authorities. There is likelihood that the students in the Collegiate Training Corps will be obliged to pursue a year-round curriculum not to exceed four semesters.

The present intention is to provide instruction during the four semesters in English, American history, mathematics, biology, physics, and chemistry. Outlines of the content of the several courses will be prepared by experts in the different fields. Upon completion of this basic training in the Collegiate Training Corps a student may be assigned for further professional or specialized training. If not retained for further training he will be returned to active duty. Young men who do not meet the physical requirements for induction and women students may continue their college education as heretofore and prepare themselves for various positions in the civilian activities supporting the war effort.

There are many administrative details not yet worked out which suggest themselves. Since the basic Army training period, for example, is approximately thirteen weeks in length, admission to the Collegiate Training Corps will have to be made at least four times a year. That is a relatively simple matter for college admission, but the irregular dates of completion will introduce special problems in relation to medical schools.

The completion every quarter of the work of the Collegiate Training Corps may mean that medical schools will have to stagger their dates of beginning first year instruction in order to accommodate the students as they complete their premedical courses. In this regard there has been active discussion of the methods of recognizing in the Collegiate Training Corps a number of students commensurate with the total capacity of the medical schools who are qualified and who desire to study medicine in order that a continuous supply of medical officers and civilian physicians can be maintained.

There has been some debate concerning the possibility of selecting premedical students at the beginning of the Collegiate Training Corps period, which is essentially at the level of high school graduation. There is practically unanimous agreement that this would be undesirable. The medical schools believe that it is not possible to select medical students until after they have spent a certain period in college. The creation of any specialized premedical group would create precedence for the establishment of other reserves that might perhaps be undesirable from the point of view of the military services. It is obvious that from the Collegiate Training Corps there must be selected a sufficient number of students to fill the medical schools. Indeed, there is a possibility that the number of medical students may have to be further increased in order to supply the urgent demands for doctors.

All students in the proposed Collegiate Training Corps will be screened at regular intervals. Those whose work is unsatisfactory will be returned to one of the armed services. The scholastic standards of the colleges and universities will be maintained for all students in the Collegiate Training Corps.

Special provision will, of course, have to be made for the students who are now in college, many of whom have completed part or all of the subjects which are likely to be included in the four semesters of the proposed Collegiate Training Corps. This transitional group of students will have to be dealt with as the problem develops. Many of them, of course, will be permitted to continue their training in college until they have completed the educational requirements satisfactory to the Army, Navy, and other armed forces. It is to be hoped that men now in college will

not be inducted and given the basic military training which would interrupt their preparation for medical studies.

The Procurement and Assignment Service has given full coöperation in our endeavor to maintain an adequate teaching staff. At this writing 174 members of the professional staff (a list is appended) are in military service, and leaves of absence are being granted daily to others who are taking up duties in the armed services or in various branches of Government service. Among those in military service are Vernon W. Lippard, Associate Dean; Dr. Phillips Thygeson, Professor of Ophthalmology and Executive Officer of the Department; and Dr. J. Gardner Hopkins, Professor of Dermatology and Executive Officer of the Department, who is on a special Government assignment. Professor Aura E. Severinghaus, long associated with the Department of Anatomy, has been appointed Assistant Dean to take over the duties of Dr. Lippard at the Medical School. Professor John H. Dunnington has assumed Professor Thygeson's responsibilities in the Department in addition to his own as the Director of the Eye Institute. Professor A. Benson Cannon has been appointed Acting Executive Officer of the Department of Dermatology. Of the 174 members of the teaching staff in military service thirty-two are professors. In addition (although partially inclusive) to the teaching staff who are in military service more than 257 doctors have left from other divisions of the Medical Center. Of that number fifty-five left with the Presbyterian Hospital Unit, known as General Hospital No. 2, in February. Evidence here, as throughout the country, shows that the proportion of men drawn from the teaching institutions is considerably higher than from the general profession.

It is important to maintain the teaching institutions at not less than minimum strength, particularly in view of the accelerated program and the now increasing demands upon a number of medical schools for courses for Army and Navy medical officers and numerous other professional personnel needed in the war effort. There is now also the prospect of having to increase further the enrollment of medical students and possibly to continue indefinitely the admission of medical classes every nine months. Should these possibilities develop, they would add another heavy burden upon the already reduced teaching staffs. All clinical de-

partments have added clinical responsibilities due in part, of course, to the withdrawal of practicing physicians from the staffs of the medical schools.

The over-all medical needs of the country for military, civilian, and public health activities have not yet been visualized. At the present time there are about thirty-four thousand doctors in the Army, and it is likely that by the end of next year, on the basis of present estimates, the Army will need about forty-eight thousand doctors. Should the ratio of doctors per thousand men in the Army be reduced the figure would be modified. It may have to be. The Navy's requirements will reach close to ten thousand doctors. At the present time the number of licensed physicians under forty-five years of age is eighty-one thousand, and those between thirty-six and forty-five total about thirty-eight thousand.

The creation of advanced courses for Army medical officers is under way. The School has been asked by the Training Division of the War Department to participate in graduate courses giving special training in maxillofacial and plastic surgery, neurosurgery, surgery of the extremities, thoracic surgery, anesthesia, and clinical laboratory procedures. Although this will entail considerable additional responsibility for the teaching staff, it is part of the war program in which this School is glad to participate. The courses are expected to begin in October and will be from six to twelve weeks in duration. The classes will be limited in number, and the assignments will be made through the Service Commands of the War Department. We shall anticipate having 50 to 115 medical officers here at one time in the several courses.

Several departments are devoting their research to war projects under Government contract through the Office of Scientific Research and Development of the National Research Council. Important research related to the war program is being conducted which necessarily is confidential and cannot be included in this report.

Although the construction of the Florence Nightingale Hospital has had to be postponed, due to the war program, the development of the staff and of the research program is under way.

The members of the Faculty, in addition to their added responsibilities in the School, hold numerous positions on committees, local and national, in connection with the war program. They are called upon by various

governmental agencies for advice in their special fields and give unstintingly of their time and talents. Those who remain at their posts at this time are contributing in no small measure to the over-all war program. The essential nature of their work, although not carrying specific governmental recognition, is of equal importance to those in the active war areas. The home force must carry the load of those who have left, both in the training of medical students and medical officers and in the care of the civilian population.

Deep appreciation is expressed for the many contributions made to the research undertakings in the various departments during the past year. A full list of these contributions is available in the report of the Treasurer.

Detailed reports of the teaching and research activities of the various departments follow.

## DEPARTMENT OF ANATOMY

Professor SAMUEL R. DETWILER, Executive Officer

The staff in gross anatomy has adopted further changes which are designed to improve the effectiveness of instruction, and to bring about still better correlation with other courses. By reason of the accelerated medical program and the necessity for dissection during the summer months adjustments in the teaching were made. This action, however, does not materially alter the total time allotted to the course.

Following the publication of the cross-section manual by Professor Dudley J. Morton, Dr. Raymond C. Truex, and Mr. Carl Kellner, a voluntary course in cross-section anatomy was offered to second, third, and fourth year students, and an evening session was held once a week by Professor Morton. The cross-section manual with accompanying kodachrome lantern slides of cross sections was used at Harvard and Georgetown universities and won favorable reports.

In connection with the graduate medicine program approximately ninety residents from affiliated hospitals in New York City received instruction in this department. Courses dealing with otolaryngology, ophthalmology, orthopedic surgery, and plastic surgery were offered by Dr. DeGraaf Woodman, Professor Samuel R. Detwiler, Professor Edmund P. Fowler, and Dr. Daniel C. Baker. A surgical course was offered by Dr. T. C. Thompson from the Hospital for the Ruptured and Crippled. In view of the fact that many hospital residents left early in the year to enter various branches of military service, the attendance and the results of the graduate teaching program are

very gratifying. Outside speakers in a symposium on the auditory mechanism included Professor Hallowell Davis, of Harvard University; Professor Elmer Culler, of the University of Rochester; and Professor H. B. Perlman, of Chicago University.

Professor Philip E. Smith has continued his investigations on the effects of pregnant mare serum gonadotropine and of androgens in hypophysectomized adult Rhesus monkeys. He finds that the beneficial effects of gonadotropin are very temporary, probably because of the production of neutralizing antibodies. On the other hand, androgens will maintain sperm production for months after pituitary ablation and will restore to a moderate degree spermatogenesis after complete involution of the testes.

Professor Smith gave the presidential address at the annual convention of the American Association of Anatomists held in New York City in April. Professor Earl T. Engle has served on the editorial board of the *Proceedings for the Society of Experimental Biology and Medicine* and has served as chairman of an editorial committee for the preparation of the twenty-fifth anniversary number of *Endocrinology*. For more than a year, Professor Engle has studied the effects of thyroidectomy in adult female monkeys, in collaboration with Professor Warren Sperry, of the Psychiatric Institute, Professor George Smelser, and Dr. Joseph Jailer.

Professor Aura E. Severinghaus has continued his cytological studies of the anterior pituitary and the thyroid gland. A portion of his time, however, has been devoted to the American Bureau for Medical Aid to China, of which he is a member of the executive committee of the board of directors. In connection with the emergency medical training program of the Chinese Red Cross and Army, Professor Severinghaus, with the collaboration of Professor Wilfred M. Copenhagen, has taken and has sent to China more than four thousand kodachrome photomicrographs of histological preparations. Three sets of 250 photographs each have been given to the Department of Anatomy and should be of great value in the accelerated teaching program. Professor Severinghaus has accepted invitations to read papers before the Symposium on Sterility, sponsored by the Committee on Maternal Health, New York; the Second American Congress of Obstetrics and Gynecology, St. Louis; the reunion of medical alumnae of Syracuse University; and the Tenth Cold Spring Harbor Symposium on quantitative biology.

Dr. Charles L. Buxton, Assistant in the Department of Obstetrics and Gynecology (working in the Anatomy Department), has continued his research in endocrine gynecology with special reference to problems of sterility, and has shown that available endocrine products are not highly effective in inducing ovulation in anovulatory women.

Dr. Sidney C. Werner, Instructor in Medicine, has continued his work in the Anatomy Department upon the effect of chronic inanition upon bone



growth in the rabbit. Studies with Dr. Mason Guest upon the effect of estradiol in producing weight loss have been made with the purpose of trying to elaborate the mechanism of failure of appetite. Dr. Guest has continued his investigations in carbohydrate metabolism in monkeys.

Dr. Louis Levin, Research Associate, has contributed several papers on the effects of anterior pituitary gland, adrenal cortex, and the thyroid on serum protein metabolism. His report has aroused considerable interest. Dr. Levin has given several lectures in the course in biochemistry. Dr. Beatrix Goldzieher has been associated with Dr. Levin in further experiments. Dr. Theodora Nussman Salmon, Research Associate, has continued her research on problems of the thyroid and growth.

In connection with Professor Morton's foot studies, a most important contribution has been the development of the barograph by Dr. Herbert Elftman. The barograph combines a principle of registering weight distribution with a unique method of reflecting light. The apparatus received unusual attention at the annual convention of the Academy of Orthopaedic Surgeons and promises to be highly useful in advancing our knowledge of foot disorders and their treatment. Professor Morton has given numerous lectures before various scientific bodies throughout the year upon the subject of functional disorders of the foot.

Professor Copenhaver has continued his studies upon the developmental physiology of the amphibian liver, finding that embryonic liver ablation produces a pronounced anemia which can be relieved by liver implants. In collaboration with Dr. Truex, a detailed study of the comparative histology of the moderator band of the heart is in progress.

Professor Raymund L. Zwemer has continued his studies upon adrenal cortex morphology (with Dr. Salmon and Mr. Robert M. Wotton), and on potassium in biological material. Much of his recent work was done in the Institute of Physiology, University of Buenos Aires (directed by Professor B. H. Houssay), where he was a guest under a Guggenheim Foundation Fellowship. While in the Argentine, Professor Zwemer lectured at the Universities of Cordoba, Cuyo, La Plata, Littoral (Rosario), and Tucuman. In Uruguay, he attended the second Pan-American Congress of Endocrinology as an official United States delegate and as the representative of various scientific societies and universities of the United States. Professor Zwemer has accepted an invitation to return to Uruguay for three months under the auspices of the Committee for Inter-American Artistic and Intellectual Relations. Professor Zwemer, with the collaboration of Professor Henry S. Simms and Dr. Bertrand E. Lowenstein, has been developing an osmometer for rapid measurement of Donnan pressures to be used for testing plasma and blood substitutes in relation to shock. With Dr. John G. Lynn, Dr. Arthur J. Chick, and Mr. August E. Miller he has been working upon the construction of a

generator for producing focused ultrasound for the destruction of tissues in localized areas.

Dr. Truex, with the collaboration of Professor Zwemer, has completed studies upon senile fatty degeneration of nerve cells in man and in animals. With Dr. Leon J. Warshaw, he has completed and published observations upon the comparative anatomy and the incidence of size of the moderator band in the hearts of man and various mammals. Dr. Truex, in collaboration with Professor Detwiler, has prepared a complete set of demonstration specimens for use in the dissection of the brain.

Professor William M. Rogers, with the help of Dr. Roland Hipsley, has been reinvestigating the fascia and fascial "spaces" of the head and neck in relation to the spread of serious infections in and around the mouth. He and Dr. Solomon Katz, of the School of Dental and Oral Surgery, have been making a clinical and radiographic study of malfunctions of the temporo-mandibular joint. Professor Rogers and Dr. Joseph Moldaver, of the Department of Neurology, have been collaborating in an experimental evaluation of chronozie as a functional test in peripheral nerve lesions.

Dr. Sherwood Washburn has completed three articles upon technique in primatology, the first of which has already been published. Dr. Ruth A. Miller has published her studies upon the laryngeal sacs of an infant and an adult gorilla, and has completed a comparative study of the upper extremity musculature of the lorises and other lemuroid species, as well as of the sloths. She has also prepared an outline for the revision of the second volume of Morton's *Dissection Manual*.

Professor Harry H. Shapiro has been carrying out investigations upon the transplantation of developing teeth in the cat. In this work he has had the collaboration of Professor Bernice L. Maclean, of the Department of Biological Sciences, Hunter College. Dr. Leona Zacharias has been working on the nerve supply to the anterior lobe of the pituitary gland in the rat.

Professor Myra L. Johnson, of Smith College, and Professor Detwiler have completed and published the results of an experimental investigation of the histology of the retina, which bears upon the general problem of the photochemistry of vision. Under the direction of Professor Detwiler, Dr. Robert R. Chace, resident in the Department of Ophthalmology, has completed a series of experiments dealing with effects of enucleation of the eye upon the proliferation of nerve cells in the external geniculate body of the rat.

The Puerto Rico primate colony has produced 100 infants this year. Food and labor costs have increased greatly due to the war, and this very important project will suffer severely from lack of financial support. One hundred monkeys have been sold to medical research laboratories. In two instances animals have been supplied for projects directly connected with the defense program.

In each of these instances, the work could not have been started except with disease-free animals such as this colony is able to provide.

## DEPARTMENT OF BACTERIOLOGY

Professor A. RAYMOND DOCHEZ, Executive Officer

Instruction in general medical bacteriology and immunology for medical and dental students has continued to be given along the lines developed two years ago. The rapid development in recent years of special fields of bacteriology has made it advisable to expand by means of elective and special lecture courses the amount of material presented to the students. In order to meet this need a special lecture course covering the subject of the filterable viruses and the diseases caused by these agents has been given by Professor Claus W. Jungeblut and other members of the staff. The opportunity for such instruction was welcomed with enthusiasm by the students. In addition, another course of lectures and demonstrations dealing with the chemistry of disease agents, bacterial metabolism, and immune chemistry was presented under the direction of Drs. Charles L. Fox, Jr., of this department, and Henry P. Treffers, of the Department of Biochemistry. The teaching of the more advanced aspects of bacteriology is of increasing importance. During the coming year, owing to the need of special war training for medical students, a greater amount of time will be devoted by Professor James T. Culbertson to the teaching of parasitology. The course in medical mycology, given jointly by the Departments of Bacteriology and Dermatology, was continued under the direction of Professor Rhoda W. Benham.

Dr. Jacques Bourdillon has been appointed Research Associate in the Department and, in collaboration with Professor Jungeblut, is studying the physical and chemical characteristics of the virus of poliomyelitis.

During the past year the diagnostic laboratory has handled a total of 52,334 specimens of bacteriological and serological examinations. Of this total 34,426 were handled by the Wassermann laboratory and 17,908 by the diagnostic laboratory proper. It is of interest that the number of specimens for bacteriological examination shows an unprecedented decline from the preceding year. This may well be due to the greatly increased use of the sulfonamide drugs by practicing physicians, so that many cases of infectious disease, which would formerly have been admitted to the hospital, are now being satisfactorily treated at home.

Graduate work in bacteriology has proceeded satisfactorily during the year. There have been thirteen candidates for the degree of Doctor of Philosophy and one for the degree of Master of Arts. Of these, four have received the Ph.

D. degree, and two more will receive their degrees during the academic year. Owing to the increased number of medical students, due to the war and for other reasons, the giving of a degree of Master of Arts, formerly presented by this department, has been discontinued.

Studies of recent poliomyelitis were continued by Professor Jungeblut and his associates during the past year. Identification of the murine strain of SK poliomyelitis virus, which had previously been isolated, was completed by means of serological methods. In collaboration with Professor Murray Sanders the methods of cultivating the murine virus *in vitro* were further examined; in collaboration with Dr. Bourdillon, experiments were begun to study the nature of the murine virus by means of physicochemical methods; and with Dr. Abner Wolf, Assistant Professor of Neuropathology, a careful neuropathological study was made of the lesions of murine and cavian poliomyelitis. With Dr. Erich Seligman (Beth Israel Hospital), Professor Jungeblut made an effort to determine whether normal human sera had any neutralizing effect on the murine virus.

Professor Culbertson, in collaboration with Dr. Harry M. Rose, Mr. Walter R. Kessler, Mr. Daniel Stowens, Mrs. Dorothy Naiman, and Miss Sylvia H. Greenfield, has continued his studies of immunity against animal parasites and natural resistance to certain protozoa. His book *Immunity against Animal Parasites* has been published by Columbia University Press, and there will appear shortly from the same source a textbook for students, *Medical Parasitology*.

Professor Beatrice C. Seegal has continued her studies of *in vivo* antigen-antibody reactions. In collaboration with Dr. Herbert B. Wilcox, Jr., the protective action of 157F (N-phenyl-Nethyl-N<sup>1</sup>-diethylethylendiamine) for histamine and anaphylactic shock in the guinea pig has been demonstrated and compared. The protective action of this drug has also been shown in the isolated perfused heart shocked either with histamine or by anaphylaxis. In association with Dr. Emily Loeb, of the Department of Medicine, the effect of antiplacental serum on pregnancy in the rat has been extended to a study of the effect of this cytotoxic serum on kidney function and pathology. In a project to study blood substitutes, Professor Seegal is undertaking a study of the anaphylactogenic nature of bovine serum fractions proposed as possible blood substitutes, utilizing the guinea pig as the test animal. This latter work is being carried on at the request of the Subcommittee on Blood Substitutes of the National Research Council.

Studies on the cultivation of spirochetes and other anaerobic microorganisms of the fusospirochetal flora have been continued by Professor Theodor Rosebury. Methods for primary isolation and for maintenance of pure cultures have been further improved. Professor Rosebury's study of Vincent's infection is of timely interest in relation to outbreaks of this disease in Army camps.

Professor Rosebury's motion picture on spirochetes has been completed, and was shown to a large and enthusiastic audience at the general meeting of the Society of American Bacteriologists in Baltimore in December, 1941. Since then the film has been shown to numerous local school, hospital, and clinic groups. A loan print has been in continuous demand and, by arrangement with a film-processing laboratory in New York, several copies have been sold at cost to medical schools and health departments. The text of the film, with additional tabular and illustrative material, will be published, and is expected to serve with the film as a useful teaching aid to students here and elsewhere.

During the past year Dr. M. Maxim Steinbach and Mr. Charles J. Duca have continued the study of the relationships between diabetes and experimental tuberculosis in dogs. This same subject has been studied in rats, and the results have been published. A report upon the effect of hypophysectomy in experimental tuberculosis of rats is now being prepared for publication. The influence of chemotherapeutic agents on tubercle bacilli, *in vivo* and *in vitro*, has also been explored. One such study on promin has been published.

Professor Murray Sanders has continued, in collaboration with Mr. Fred Rights and Miss Eleanora Molloy, his studies of neurotropic viruses. Mouse poliomyelitis virus is easily grown and is quite stable in tissue cultures. This agent has been studied in order to classify the relationship between virus and cell *in vitro* and the various phases of tissue cultures and their bearing on virus growth. Similar studies are now being carried out with equine encephalomyelitis. Professor Sanders has collaborated with Professor Jungeblut in studies of the interference phenomenon in monkeys between murine poliomyelitis virus and standard paralyzing strains of poliomyelitis virus. Following the successful propagation of the virus of equine encephalomyelitis in serum ultrafiltrate cultures by Professor Sanders and Miss Molloy, in collaboration with Mr. Rights, an alum-precipitated vaccine was made from tissue cultures which gave tenfold concentrations of the virus. Studies of the immunizing capacity of this vaccine are now being carried out.

Professor Sanders has also made a study of epidemic keratoconjunctivitis. A filterable agent which is infectious for mice has been isolated from this disease. Further tests are being carried out to determine the specificity of the agent and to develop a diagnostic test for epidemiological studies. An immune serum is also being prepared for therapeutic purposes.

Dr. Charles L. Fox, Jr., has pursued research on the action of chemotherapeutic agents on intermediary carbohydrate metabolism and the comparative action of different sulfonamides on growing bacteria. Latterly, research was shifted to the more urgent problems of the local use of these drugs in war wounds and burns. With Dr. Harry M. Rose, the comparative action of a number of sulfonamide drugs was tested against a wide variety of pathogenic bacteria. In the local treatment of wounds and burns the most potent drugs,

sulfathiazole and sulfadiazine, present certain difficulties because of their insolubility. This difficulty has been overcome. An improved tannic acid ointment for the treatment of burns has been prepared by neutralizing the tannic acid with sodium sulfadiazine. This ointment has also been used in the treatment of human burns. Studies have also been undertaken which relate the antibacterial efficiency of the sulfonamide drugs to the degree of ionization which they undergo. A new substance which chemically resembles the sulfonamides and which is formed in large amounts during bacteriostasis has been discovered. The significance of this substance is being determined.

Mr. Rose has collaborated with Dr. Fox in a quantitative analysis of sulfonamide bacteriostasis in a study of the mode of action of these drugs, and in a study of the significance of ionization of the sulfonamides in relation to their antibacterial efficiency. Dr. Rose, Dr. Donald G. Anderson, of the Department of Medicine, Mr. Belton A. Burrows, and Mr. Thomas C. Chalmers have made observations on factors controlling the excretion of sulfadiazine in the urine. With Professor Culbertson further studies have been made on the immunological relationships of parasites of the Trematode and Nematode groups.

Dr. Ada R. Clark has completed studies carried out over a period of two years in order to determine if cyclic changes of vitamin C metabolism occur in animals which synthesize ascorbic acid. In collaboration with Professor Rosebury she is investigating methods of isolation and cultivation of anaerobic streptococci and vibrios from exudates containing fusospirochetal organisms.

Dr. Margaret Holden, in collaboration with Professor Daniel E. Ziskin, of the School of Dental and Oral Surgery, has studied cases of herpetic gingivostomatitis for the presence of herpes virus in their saliva and for the development of antibodies in their blood. With Dr. Rose she is studying the effect of infection of mice with influenza virus and the relationship of this infection to invasion of the respiratory tract by other organisms. An investigation of the effect of a local allergic reaction on the spread from such a site of other infective microorganisms has also been undertaken.

Graduate studies in bacteriology have progressed satisfactorily during the year. Miss Molloy has continued her studies on the cultivation of equine encephalomyelitis virus and methods of immunizing against this agent. Mr. Rights has been engaged in a study of the growth of rabies virus in tissue culture and the preparation of a vaccine for immunization against equine encephalomyelitis. Mr. Walter Kessler studied experimental *Bartonella muris* infection in the rat, and Mr. Duca is investigating *by the tissue culture method* certain aspects of tissue sensitivity in tuberculous animals. Mrs. Dorothy N. Naiman is studying resistance of irradiated rats to trypanosome infection; Mr. Morris Solotorovsky, the effect of irradiation on antibody production; and

Miss Margaret Bailly, the blood picture produced by Bartonella infection in rats.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

Early in the academic year the Department suffered an irreparable loss through the death on September 10 of Associate Professor Rudolf Schoenheimer, whose investigations of intermediary metabolism with the aid of stable isotopes have attracted world-wide attention. His death cut short at its prime the career of one of the most outstanding biochemical investigators of the past decade. Professor Schoenheimer contributed largely, not only to the scientific work of the Department, but to its teaching activities.

The Department has also lost the valued services of Dr. Marianna M. Richards, who resigned in August, 1941, to take a research position in the laboratories of the New York State Department of Health in Albany. Her contributions to the work of the Department, besides teaching, lay mainly in the fields of physiochemical biochemistry and enzyme chemistry.

Professor Maxwell Karshan, with two teaching assistants, has again taken entire charge of the instruction of biochemistry to students of dentistry. He has also been active in the biochemical investigation of dental problems.

The losses of the Department by death and resignation have been partially offset by the appointment of one new full-time member of the staff, Dr. DeWitt Stetten, Jr., who during the year has contributed notably to the effectiveness of the instruction to medical students, particularly with regard to the clinical aspects of biochemistry.

Owing to the unusual size of the first year medical class and limitations of facilities, laboratory instruction to the fifteen graduate students was given in a separate section. Advanced instruction has also been given to thirteen graduate students, more than half of whom have been engaged in research in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

As a result of the added teaching load, and a decrease in the instructional group, a higher proportion of the time of the departmental staff was devoted to teaching and less to research than in previous years. Laboratory facilities have been provided for four Fellows of other institutions and foundations, for two research workers from the Department of Dermatology, and for several visiting scholars.

A group of investigations, carried out in collaboration with Professor Michael Heidelberger by the late Professor Schoenheimer and his group and nearly completed at the time of his death, has led to the significant conclusion

that whereas antibodies produced by active immunization undergo, in the living animal, the metabolic nitrogen transfer-reactions characteristic of all tissue protein, then processes do not take place with antibodies artificially introduced in passive immunization. This fundamental difference has been demonstrated in one and the same animal, immunized actively to one type of pneumococcus and passively to another.

Professor Edgar G. Miller has continued his work, in collaboration with Dr. Victor Ross, on the metabolism of spermatazoa and the chemistry of seminal plasma. Professor Goodwin L. Foster, in collaboration with Professor David Rittenberg, has further developed the methods for the analytical determination of amino acids in proteins with the aid of stable isotopes. Professor Erwin Chargaff, in collaboration with Dr. Morris Ziff and Professor Rittenberg, has applied the isotope dilution method in an investigation of the structure of tissue phospholipids. In the continuation of his studies on the mechanism of blood coagulation Professor Chargaff, in collaboration with Dr. Dan H. Moore, of the electrophoresis laboratory, has secured a highly potent preparation of the thromboplastic protein by means of the ultracentrifuge. Professor Erwin Brand has continued an investigation on canine cystinuria and has extended his studies on the distribution of the sulfur amino acids in pure crystalline proteins to the determination of other amino acids.

Professor Rittenberg has continued the study of the metabolism of amino acids with the aid of stable isotopes which he and the late Professor Schoenheimer initiated. In this work he has been ably assisted by Dr. Sarah Ratner and Dr. David Shemin. In collaboration with Dr. Konrad Bloch he has demonstrated that acetic acid is a biological precursor of cholesterol, and is extending the study to include other simple fatty acids labeled by both deuterium and heavy carbon. An investigation of the biochemical regeneration of glutathione, carried out by Professor Rittenberg with Dr. Heinrich B. Waelsch, of the Department of Neurology, has been completed. Under Professor Rittenberg's direction, Mr. Henry D. Hoberman, a graduate student, has completed his doctoral dissertation on the catalysis of the exchange reactions between water and hydrogen under the influence of bacteria. Mr. Hoberman has been awarded a National Research Council Fellowship for the coming year.

Dr. Stetten has completed a study of the metabolism of choline and related compounds with the aid of isotopes. He is also studying the nature of types of fatty liver that resist the action of choline and is attempting to determine the precise form in which fatty acids leave the liver under the influence of choline therapy.

Dr. Frederick W. Barnes, Lalor Foundation Fellow, in completing his requirements for the degree of Doctor of Philosophy in biochemistry has made an isotopic study of the nitrogen metabolism of pigeons. Dr. Barnes, a trained pediatrician, has been appointed to an assistant professorship in the Depart-



ment of Pediatrics in the University of Cincinnati Medical School. Dr. William J. Darby, a National Research Council Fellow, has carried out chemical and metabolic studies on histidine, histamine, and related compounds. Dr. Max N. Huffman, a National Research Council Fellow, has been engaged in an organic chemical study of derivatives of estrone. Dr. Albert S. Keston, a Visiting Scholar, in collaboration with members of the Departments of Medicine, Pathology, and Radiology, has investigated the effect of radioactive iodine upon a metastatic tumor of thyroid origin.

As in previous years the Department has provided facilities for a large proportion of the diagnostic analytical work of the Medical Center.

The Department has been fortunate in having seminar lectures by Drs. Max Bergmann, Rene Dubos, Moses Kunitz, and Leo Michaelis, of the Rockefeller Institute, and by Dr. Dugald Brown, of New York University.

## DEPARTMENT OF CANCER RESEARCH

Professor WILLIAM H. WOGLOM, Acting Executive Officer

The work of the Department continues to be fundamental research save for the occasional test of a new lead which appears for a time to offer some promise of a short cut.

It has been possible to reduce the animal colony considerably by insisting upon quality rather than quantity, for a few experiments on inbred stock are more enlightening than many on a stock of unknown composition. This restriction has the advantage, too, that no animals, and hence no epizootics, are introduced from outside sources, so that the mortality in the colony has now become negligible.

Professor Woglom and Dr. Philip M. West have completed and published the first phase of an investigation on the relation of biotin to neoplastic growth. On the whole, tumors were found to contain only a fraction of the biotin present in the corresponding normal tissues, though a few types had a definitely higher content.

The findings are still highly theoretical, but the investigation is not without its practical side. From time to time the daily press has contained suggestions, if not actual demands, that cancer patients be put upon a biotin-free regime. The experiments in the Department clearly show that the cells of these tumors, at least, are independent of biotin as no other known cells are. All require biotin, and synthesize it when it is not available. Yet tests proved that the tumor cell cannot, or at any rate does not, synthesize biotin, and the ability to grow with its customary vigor in the almost complete absence of this substance, so indispensable for other cells, may perhaps prove to be a fundamental difference leading to further insight into the nature of malignancy.

Professor Woglom is continuing his studies of the spontaneous carcinoma of the mouse mamma and of the conditions determining the induction of sar-

coma with carcinogenic agents, and in addition has undertaken to edit *Cancer Research* until the permanent editor, Dr. Stanhope Bayne-Jones, is released from Government service at the conclusion of the war.

Professor Charles Packard, while on leave of absence for the Winter Session, devoted his time to the affairs of the Marine Biological Laboratory, of which he is the director. Since his return he has been analyzing the extensive data which he has obtained on the biological measurement of x-rays. With Mr. Frank M. Exner he has devised methods for reducing these data, and those obtained by dosimetric methods, to a few charts adapted for the use of practicing radiologists. By means of these curves dosage can be calculated with sufficient accuracy for any condition encountered in deep therapy, an advance the value of which needs no emphasis. Mr. Exner has completed a long series of measurements undertaken to provide a set of surface and depth dose ratios covering the whole range of physical conditions encountered in deep x-ray therapy, employing voltages from 100,000 to 1,000,000.

Dr. Salvador E. Luria, a Dazian Foundation Fellow and a Research Assistant in the Department of Surgery, has been working with Mr. Exner in this department as a guest, and in recognition of the value of their investigations he has been awarded a Guggenheim Fellowship.

With the collaboration of Dr. Carl Reich, hematologist at the Lenox Hill Hospital, Dr. Milton J. Eisen has begun investigations on leukemia in a strain of mice genetically susceptible to this disease, and on the possibility of inducing it in strains that do not possess a hereditary leukemic factor. Dr. Eisen is continuing his study on the effect of estrogen upon the rat's breast.

Members of the Department have published seventeen papers and delivered ten popular or technical lectures during the year, and the usual Summer Session course on tumor diagnosis was given by Professor Woglom.

The following companies have continued generously to supply pharmaceutical products for experimental purposes: Ciba Pharmaceutical Works (through Dr. R. MacBrayer), Hoffman-La Roche (through the late Dr. Louis Klein and Dr. R. J. Floody), Merck and Company (through Dr. Randolph T. Major), Parke Davis and Company (through Mr. L. T. Clark), Schering Corporation (through Dr. Erwin Schwenk), Winthrop Chemical Company (through Dr. L. M. Fox), and Vico Products Company (through Mr. H. N. Fizdale).

## DELAMAR INSTITUTE OF PUBLIC HEALTH

Professor HARRY S. MUSTARD, Executive Officer

The revised and somewhat expanded graduate teaching program of the Institute, begun in 1940, has met fairly well the quantitative and qualitative demands of the present academic year. As these demands change, and it seems likely they will change, further modifications and expansions will be neces-

sary. Twenty graduate students received the degree of Master of Science in public health in the academic year 1941-42. Of these, four had completed residence requirements previous to the opening of the session.

The division of the academic year into quarters instead of trimesters necessitated some changes in the course in biostatistics given to graduate students in public health. A new course, "Sources of Vital Statistics," was given, and the course in statistics and epidemiology of chronic diseases given in collaboration with the staff in epidemiology was enlarged and has now been made a required course. An advanced course in statistical analysis was also given. During the past year the division of biostatistics was frequently consulted by members of the medical faculty engaged in research projects.

In the field of epidemiology the following research was carried forward. A study of the efficacy of pertussis vaccine was brought to completion and was reported at the annual meeting of the American Public Health Association. In coöperation with the New York State Department of Health and the Rockefeller Institute, a study of the relation of the various serological types of beta-hemolytic streptococci to exacerbations of acute rheumatic fever has been carried out in the West Haverstraw Cardiac Hospital. A study of the prevalence of carriers of toxogenic and nontoxogenic diphtheria bacilli has been carried out in the Lower East Side in New York City. As a part of this study, an attempt has been made to measure the immunological response of individuals to infection with toxogenic and nontoxogenic organisms.

In coöperation with the Westchester County Department of Health, an epidemiological study of tuberculosis is under way. An attempt has been made to measure the relative risk of infection of members of households of cases of tuberculosis according to the stage of the disease at the time of recognition of the primary case, and according to various forms of treatment applied to the primary case.

During the past year the Institute has conducted two special courses in industrial hygiene and medicine for medical officers of the Navy. These courses, under the direction of Professor Frederick B. Flinn, ran for a period of three months each. Professors Earle B. Phelps, John W. Fertig, and Ernest L. Stebins assisted in these courses. On completion of the training, the officers are ordered to the various naval stations to care for the civilian employees. Also under Professor Flinn's supervision, a two-weeks concentrated course for medical men employed in industry was given during the Winter Session. This course was attended by sixteen doctors.

The Pierce Foundation research in air bacteriology has been completed, and the results have been published in a series of six papers in the *Journal of Bacteriology*. Professor Phelps and Dr. Leon Buchbinder were invited to summarize these results in a symposium at the summer meeting of the American Association for the Advancement of Science at Chicago, and these papers are in press. Professor Phelps published in *Sewage Works Journal* a paper on the

results of a special investigation which he has made on the Guggenheim process of sewage treatment.

The staff of the Institute has studied with care its program of undergraduate instruction, and plans have been evolved which will permit more satisfactory presentation and coördination with clinical instruction. Through agreement with the Dean of the School of Dental and Oral Surgery the Institute this year undertook responsibility for providing a series of ten lectures for students of the Dental School. This has been under the immediate direction of Professor Bion R. East.

There have been a number of changes in the personnel of the Institute during the past year. Dr. Buchbinder, Miss Mathilde Solowey, and Mr. Morris Solotorovsky have completed their work in the air hygiene laboratory. Professor Moses L. Isaacs resigned to take up new duties, and Mr. Morris Nussbaum has resigned to accept a position with the United States Public Health Service. Miss Elsie Dochterman, Instructor in Biostatistics, resigned her position as of June 1 to accept a statistical position in Washington, and in her place we have been fortunate in securing Miss Margaret P. Martin. Mr. Norman Jarvic and Mr. Alex Gordon, who received temporary appointments as Instructors in Industrial Hygiene, resigned during the year, Mr. Jarvic to enter the Navy as a lieutenant, and Mr. Gordon as a first lieutenant in the Army. Associate Professor Albert V. Hardy's resignation became effective June 30, when he entered the United States Public Health Service. Dr. Bernard M. Blum, Instructor and district health officer, is on leave during 1942-43 for active duty in the Medical Corps of the United States Army. Dr. George Carden has been granted leave of absence for service with the National Research Council for the duration of the war. Dr. Albert McCown, Lecturer in Public Health Practice, resigned to accept the medical directorship of the American Red Cross. Dr. Clelland A. Sargent resigned to give full time to his duties as district health officer in upstate New York. Miss Margaret Arnstein resigned in the early part of the year to accept a position with the United States Public Health Service. Mr. Morris Gippin, Research Assistant in Epidemiology, resigned in March. Dr. Stafford M. Wheeler was appointed Associate Professor of Epidemiology, to be effective July 1. He will be given leave of absence to enter the Medical Corps of the United States Navy for the duration of the war. Miss Marie L. Johnson was appointed as Lecturer in Public Health Practice.

## DEPARTMENT OF DERMATOLOGY

Professor J. GARDNER HOPKINS, Executive Officer

The Department of Dermatology has been fortunate in losing only two members, Dr. Romola Lyons and Dr. Frederick Birkman.

Professor A. Benson Cannon has secured funds to provide for two addi-

tional residents who will assist in the study of syphilis therapy which he is conducting.

In Professor Cannon's project on syphilis therapy 140 cases have now completed a five- or six-day course of treatment in the hospital. The results encourage hope that by further modification a reliable procedure may be developed which will be especially promising in this regard.

The importance of the observations made by Professor Paul Gross last year that nummular eczema was amenable to vitamin A therapy has become more evident with longer experience. With the aid of Professor Beatrice M. Kesten, Professor Gross has continued his vitamin studies in psoriasis with highly encouraging results. This clinical work has been based on experimental studies in animals in which Professor Gross is assisted by Dr. Eleanor K. Darby and Miss Edith Runne. His work is aided by a grant from the John and Mary R. Markle Foundation.

The groundwork laid for some years by Professor Rhoda W. Benham in developing a laboratory for the study and teaching of medical mycology is proving fruitful. More demands are coming in from physicians and biologists who desire information in this field. It seems inevitable that if our troops are to operate in the tropics, medical mycologists will be desperately needed. This laboratory should be a source of help in such an emergency. It is at the moment training a group of technicians for a study of dermatophytosis among troops in Southern camps.

Professor George C. Andrews has reported on the over-all results in this clinic of radiotherapy in cancer of the skin. He has conducted for the past three years a course in radiotherapy for the American Academy of Dermatology. His work has led in the growing recognition of the greater safety of low-voltage x-ray in all types of radiotherapy of the skin.

Dr. James L. Miller has reported on his studies of the local application of sulfonamides in skin infections. He has also reported with Dr. Robert A. Kritzler, of the Department of Pathology, the first case of febrile nonsuppurative panniculitis in which autopsy studies were made. Dr. Richard J. Kelly has continued his work on the use of sex hormones in acne. Dr. Leslie P. Barker has taken charge of the treatment of mycoses in the clinic. His observations on the effect of estrogens on regrowth of hair in ringworm of the scalp are of special interest.

Dr. Edith Quimby, of the Memorial Hospital, generously gave a course this winter on physics as related to radiotherapy. It was attended by members of the staff and by graduate students in dermatology and radiology. A special group of lectures and demonstrations on syphilis for fourth year students of this school and of Cornell and New York universities was given as usual. Professor Evan Thomas and Dr. Mortimer B. Speiser, of New York University, and Professor Edwin P. Maynard, of the Long Island College of Medicine, were guest speakers.

## DEPARTMENT OF MEDICINE

Professor WALTER W. PALMER, Executive Officer

Important changes in the teaching program in the Department have been necessary as the result of the declaration of war which called into active service the Hospital unit and many of the younger men. Added to the problem of the reduced staff is the accelerated school program and the Army regulation of only one year for internship. Certain changes have been made to meet the emergency. The third year has been divided into quarters instead of trimesters, which reduces the time devoted to basic clerkship training in medicine and surgery. The subjects of fourth year lectures have been radically revised to include a large number on tropical diseases and a few on aviation medicine.

From Bellevue Hospital Professor I. Ogden Woodruff reports few losses from his teaching staff up to June, 1942, with little change in the teaching program. Dr. Bernard J. Handler has proved most helpful in the instruction of the fourth year students. Dr. Gertrude Nicholson has given special instruction in electrocardiography and in cardiac and respiratory diseases in general. Excellent presentations of current pathological material have been given by Dr. David M. Spain, of the Tuberculosis Service. The clinicopathological service has received new impetus since Professor William C. Von Glahn (now of New York University) has been made director of the Pathological Service at Bellevue Hospital. Rearrangement of the intern service to meet war conditions provides for all interns appointed last autumn to begin their service July 1. Those eligible for military service will have six months each of medicine and surgery. The others will continue a two-year service as usual.

Professor J. Burns Amberson, Jr., reports an increased bed capacity, 365 as compared with 317. Last year the service cared for 2,657 tuberculous and 565 nontuberculous patients. The service maintained its usual teaching activities: physical diagnosis for second year; nearly the entire fourth year class instructed in differential diagnosis of diseases of the chest, with special emphasis on care and treatment; postgraduate work for fifteen physicians in coöperation with the Trudeau School; two special students on fellowships from the Commonwealth Fund trained in preparation for work in the South; instruction for students from the DeLamar Institute; and the usual courtesies extended to visiting physicians and to Cornell and New York University students.

Fifteen fourth year students and four third year students had clinical clerkships at Welfare Hospital under Professor David Seegal's direction. This experience for the students is of high value, for they are given much responsibility in care of patients, have a selected reading program, participate in the clinical pathological conference, and attend the special monthly talks provided for the staff.

Captain C. S. Stephenson, of the United States Navy, in charge of the Division of Preventive Medicine, lectured to the fourth year students on tropical diseases on April 25.

The Hospital Unit, General Hospital No. 2, was called early in the year and took twenty-five men from the Department, many of whom were carrying on active investigative work.

Until war activities interrupted, Professor A. Raymond Dochez, Professor Yale Kneeland, Jr., Miss Katherine Mills, and Miss Barbara Mulliken continued their work on the virus of the common cold and influenza. Professor Franklin M. Hanger has made observations that make it possible to study various toxic manifestations of alcoholism and industrial poisoning from a new point of view. With Dr. Elvin A. Kabat he has demonstrated by fractionation of serum with the Tisalius apparatus that a positive reaction depends, not upon intrinsic changes in the globulin, but upon delicate alterations in the stabilizing power of the albumin and other fractions of the serum in liver disease. Professor Alvin F. Coburn and Dr. Lucile Moore have, after a three-year study, found an association between faulty diet and susceptibility to rheumatic fever. With Dr. David E. Green they have found that the antisulfonamide action of protein hydrolysates can be referred to certain members of the neutral amino acids. They have also isolated from yeast and liver a peptide of p-aminobenzoic acid on which constitutional studies are now being conducted. In collaboration with Merck and Company these findings are being applied to the development of new chemotherapeutic agents. Dr. Green and Mr. Paul Stumpf have described the properties of an enzyme in heart muscle which condenses acetaldehyde to acetoin. Dr. Green has obtained milk peroxidase in highly purified form, and a study of its constitution and properties is in progress.

In the Edward Daniels Faulkner Arthritis Clinic, Professor Ralph H. Boots, Professor Martin H. Dawson, Dr. T. Lloyd Tyson, and Dr. Charles A. Ragan, with the assistance of Dr. Gladys Hobby and Mrs. Miriam Lipman, have studied during the past year the use of gold and hyaluronic acid and its enzyme in rheumatoid arthritis. As yet no correlation has been found between gold blood levels and toxicity or therapeutic results. The relation of the hyaluronic acid content of joint fluid to various joint diseases has been studied.

Professor Seegal, director of the Research Service, Welfare Hospital, and the members of his staff, Dr. Arthur J. Patek, Jr., and collaborators, Dr. Joseph Post and Dr. Oscar D. Ratnoff, have extended their studies of Laennec's cirrhosis of the liver. A highly nutritious diet, supplemented by vitamin B concentrates, is of therapeutic value. Dr. David P. Earle, Jr., and Dr. Joseph Victor observed that excess dietary cystine rapidly produced severe liver damage and cirrhosis. The changes produced by cystine feeding could be modified by alterations in the other dietary components. Drs. Charles Haig, Selig Hecht,

and Arthur J. Patek, Jr., have shown that the feeding of thyroid substance or of *v*-dinitrophenol could correct the impaired dark adaptation of patients with vitamin A deficiency. Professor Forrest E. Kendall has crystallized albumin from the ascitic fluid of patients with cirrhosis of the liver. Professor Seegal and Dr. Earle report certain biologic and geographic differences between acute glomerulonephritis, chronic glomerulonephritis, and rheumatic fever. Although twice as many males as females contract glomerulonephritis, this sex variation is not apparent in rheumatic fever. The preceding clinical infection in acute glomerulonephritis is a "deep" hemolytic streptococcus infection in at least two thirds of the cases, in contrast to the usual superficial pharyngitis preceding the onset of rheumatic fever. Dr. Earle, Professor Seegal, Professor John D. Lyttle, Dr. Emily N. Loeb, and Miss Elizabeth L. Jost participated in the study of thirty-three chronic glomerulonephritis cases.

Professor Alvan L. Barach and Dr. Alfred Steiner have continued the study begun by Dr. Kenneth B. Turner on the physiological action of oxygen and carbon dioxide on the coronary circulation. Dr. Steiner and Mrs. Beatrice Domanski have reported a study on the serum cholesterol and atherosclerosis in chronic glomerulonephritis.

Work in pulmonary physiology under the supervision of Professor Dickinson W. Richards, Jr., in collaboration with Professor André F. Cournand at Bellevue Hospital and Dr. Herbert C. Maier and Dr. Richard L. Riley has been continued. A report of the effects of complete unilateral pneumonectomy on pulmonary function in which Dr. Cournand, Dr. Riley, Dr. Charles W. Lester, and Dr. Frank B. Berry have collaborated is being published and two papers are now in press, one on the effects in children, the other on the effects in adult patients. The study of shock carried out by Professor Richards in collaboration with New York University College of Medicine is an attempt to make a comprehensive investigation of the circulation in clinical states of shock. The results of this investigation are not available for publication. At the Presbyterian Hospital in collaboration with Dr. Eleanor Baldwin, Dr. William Gillespie and Dr. Frederick Davenport have carried on studies of pulmonary and circulatory failure.

Professor Robert F. Loeb's studies include: with Dr. George A. Perera and Dr. Robert W. Berliner, the influence of an increasing plasma volume upon the development of paroxysmal nocturnal dyspnea; with Dr. Donald Parker, Mrs. Tatiana Hull, and Professor Irving Pardee, the study of the muscle electrolytes, as well as serum electrolytes; with Miss Elizabeth A. Caldwell, the influence of desoxycorticosterone on glycogen storage in heart muscle, as well as changes in potassium in adrenalectomized rats; with Dr. Parker the effects of thyroidectomy, and ablation of other endocrine structures, upon the desoxycorticosterone requirements of adrenalectomized dogs; and with Professor Dana W. Atchley, Dr. Parker, and Mrs. Hull, the effects of desoxycorticos-



terone upon the replacement of potassium by sodium in the various tissues of the normal dog.

Professor Alexander B. Gutman with Mrs. Ethel B. Gutman and Dr. Thomas Sullivan (Urology) studied serum "acid" phosphatase in metastasizing prostate carcinoma, particularly in connection with castration. With Dr. Bradley Scheer and Dr. Green, Professor Gutman investigated the purification of uricase from pig liver for the purpose of trying to obtain in gouty patients the sharp drop in serum uric acid noted by Dr. E. Oppenheimer (of Johns Hopkins) in chickens made gouty by a high-meat diet. In collaboration with Dr. Dan H. Moore (electrophoretic laboratory) and Dr. Elvin A. Kabat (Neurology), he studied the blood in multiple myeloma by combined Howe and electrophoretic techniques, and demonstrated for the first time by adequate methods that Bence Jones proteins are present in the blood of some patients with multiple myeloma and has proved useful in the diagnosis of that disease. With Mrs. Gutman and Mr. Francis B. Warwick, a third year medical student, Professor Gutman carried out a demonstration of phosphorylase in calcifying cartilage and its role in calcification which should throw some light on certain disturbances of calcification in disease. In collaboration with Dr. Moore, Professor Randolph West has found a possible laboratory method for estimating the clinical activity of purified liver extracts.

Professor Michael Heidelberger, in collaboration with Dr. Otto G. Bier (Guggenheim Fellow, Brazil) and with Mr. Manfred Mayer, a graduate student, has studied the contribution of the four components of the complement to the uptake of the complement nitrogen by immune systems (complement fixation). With Dr. Donald Anderson he has determined the quantity of antibody in the sera of pneumonia patients on recovery after sulfathiazole and sulfadiazine therapy. Dr. Henry P. Treffers, under Professor Heidelberger's direction, is continuing quantitative studies on hemolysins and blood-group substances and on the properties of horse-antisera to various proteins, the latter with the assistance of Dr. Jules Freund, of the New York City Department of Health research laboratories at Otisville, New York. Mrs. Catherine C. MacPherson, a Commonwealth Fellow, is carrying on the laboratory's collaboration in the influenza bacillus research under the direction of Dr. Hattie E. Alexander, of the Babies Hospital.

Professor Robert L. Levy and Dr. Howard G. Bruenn have studied the effect on patients who have received paravertebral sympathetic alcohol block for the relief of cardiac pain. Further studies on the effects of the xanthines in coronary artery sclerosis confirm earlier conclusions.

Professor Alvan L. Barach, after several years of observation, reports that the use of the equalizing pressure chamber in cases of advanced pulmonary bilateral tuberculosis not only immobilizes the lung, but aids the clearing of exudate and lesions in the lung as previously reported, and also results in the

collapse and disappearance of cavities of considerable size. He has been able to relieve patients with severe intractable asthma by the combination of aminophylline and helium-oxygen therapy.

Activities of the constitution clinic under Professor George Draper include a statistical study by Dr. C. Wesley Dupertuis of the entire series of anthropometric measurements made by Professor Seegal, Professor Draper, and Mrs. Clara Holland. Professor Draper is also analyzing the anthroposcopic technique as revealed in our previous descriptions of observable differences, as well as in the photographs by the Sheldon technique. Dr. John L. Caughey, Jr., has completed a four-year study of the spirogram which has developed some unusual and interesting knowledge. Professor Draper has continued the work of correlation between all the panels for which we now have available techniques and, in addition, a new departure in the study of constitution has been established in the study of the differences in tissue culture growth of the buffy coat of the blood.

Professor William P. Thompson, in collaboration with the various members of the spleen clinic, has started a book on the spleen. The members of the clinic are Professor Allen O. Whipple, Dr. Louis M. Rousselot, Dr. Mary J. White, Mrs. Katharine E. Smith, and Miss Catherine Illyne.

Dr. Sidney C. Werner has completed the quantitative determination of urinary hypophysial gonadotropin, estrogen, and androgen, studies which were started two years ago. It has been noted that striking clinical improvement has been achieved in several cases of marked anterior pituitary insufficiency in human beings by the use of methyl testosterone. It is possible that a potent therapeutic agent in a hitherto untreatable disease has been found.

Professor Kenneth B. Turner left for London in January on a special assignment as liaison officer between the Medical Research Council of Great Britain and the National Research Council in the United States.

Many members of the Department are engaged in national emergency activities: Professor Palmer (*a*) member of the Committee on Medicine, National Research Council, advisory to the Surgeon General of the Army and Navy; (*b*) chairman of the Committee on Drugs and Medical Supplies, National Research Council; Professor Dochez (*a*) Surgeon General's Board for Investigation and Control of Influenza and Other Epidemic Diseases in the Army; (*b*) Committee on Medical Research of the Office of Scientific Research and Development; (*c*) Advisory Committee of the United States Public Health Service; Professor Loeb (*a*) chairman of National Research Council Subcommittee on Blood Substitutes; (*b*) Committee on Shock and Transfusion, National Research Council; Professor Dawson (*a*) Director of Commission on Hemolytic Streptococcal Disease; (*b*) Board of Epidemic Diseases in the Army; Professor Heidelberg, National Advisory Pneumonia Commission; Professor Robert L. Levy, Subcommittee on Cardiovascular Diseases,

National Research Council; Professor Amberson, Subcommittee on Tuberculosis, National Research Council.

On July 21 Archibald McIntyre Strong died. He had been a member of our staff for over twenty-five years, beloved and respected by everyone. Professor Seegal was promoted from Assistant Professor to Associate Professor, and Professor Barach from Assistant Professor of Clinical Medicine to Associate Professor of Clinical Medicine. Professor Coburn resigned to accept a commission in the Navy. Dr. Henry P. Treffers has resigned in order to accept an appointment as Assistant Professor of Comparative Pathology and Biochemistry at the Harvard Medical School. Professor Loeb was appointed the first incumbent of the newly created Samuel W. Lambert professorship. Professor Loeb gave the Harvey Lecture on December 18 on "The Adrenal Cortex and Electrolyte Behavior." Professor Heidelberger has been elected a member of the National Academy of Sciences.

## DEPARTMENT OF NEUROLOGY

Professor TRACY J. PUTNAM, Executive Officer

The main fields of investigation in which the staff has worked may be divided roughly into general anatomical problems, motor disorders, epilepsy and cerebral metabolism, electrophysiology, and multiple sclerosis and encephalitis. Other miscellaneous subjects have also been considered.

In the anatomical realm, Professor Henry A. Riley continues to work on the *Atlas* of the brain, which is now in process of publication. Professor Otto Marburg has worked on a number of subjects, including the anatomy of the visual system and the structure of a cyclops (with Professor Mettler). Professor Frederick A. Mettler has investigated the anatomical connections of the pons Varolii, and the physiologic results of sections of it. Professor Putnam has completed a study of the cortical representation of macular vision. Professor Mettler has begun a systematic review of the effects of cortical and subcortical extirpations, chiefly in monkeys, with the purpose of reproducing some of the phenomena of the dyskinesias. Dr. Ernst Herz is making a survey of clinical cases, with the object of a reclassification of the various types of dyskinesias which are apparently more numerous than supposed. Most of this work has been done under a grant from the Matheson Commission on Encephalitis.

The volume of the Association for Research in Nervous and Mental Disease on the diseases of the basal ganglia has been published under the editorship of Professor Putnam, containing articles by him and by Professors Paul F. A. Hoefer and Mettler.

In the field of epilepsy, a considerable amount of work has been initiated by Dr. Heinrich Waelsch, assisted by Dr. Jerry C. Price, under a gift from Mrs. Joshua Rosett, in memory of the late Professor Rosett, whose untimely death

was such a loss to the Department last year. Dr. Waelsch has approached the problem chiefly from the aspect of cerebral metabolism. He has investigated the effect of deprivation of various vitamins and certain intermediary metabolites on the convulsive threshold. With Dr. Albert J. Lubin, he has studied the effect of changes in the acid-base equilibrium on the electroencephalogram and on the pial blood flow. Professor John E. Scarff has continued his observations on seizures amenable to surgical treatment and on methods of cortical stimulation.

A number of investigations into the electrophysiology of the nervous system have been carried on. Professor Hoefer, with Dr. J. Lawrence Pool, has studied the transmission of the nervous impulse from the cortex through pyramidal and extrapyramidal pathways in the brain stem. Clinical and electroencephalographic records are being accumulated for various other studies. Professor Hoefer also gave an elective course in neurophysiology with Professor Kenneth S. Cole for the fourth year students, and another for the New Jersey Neuropsychiatric Association.

In the field of encephalomyelitis and multiple sclerosis Professor Abner Wolf and his co-workers have continued their studies of toxoplasmic encephalomyelitis. Dr. Elvin A. Kabat, with Dr. Dan H. Moore and the late Dr. Harold Landow, has studied the chemical nature of the proteins of the spinal fluid. With Dr. Landow also, Dr. Kabat determined the actual weight of the antigen and antibody required to produce anaphylaxis in the guinea pig. He is also, with Dr. Judah Ebin, attempting to produce encephalomyelitis by the injection of extracts of various organs. With Professor Wolf and Mr. William Newman, he has devised methods for the demonstration of three different types of phosphatase in tissues. At present, Dr. Kabat is working on a war project, which is largely excluding work of other types. Professor Putnam has completed a survey of the relationship between neuromyelitis optica and multiple sclerosis.

Among other investigations should be mentioned the work of Dr. Harold Larnport on the dynamics of kidney function, considered from the mathematical standpoint; the work of Dr. Ebin on the use of carbon dioxide snow and cauterization as a hemostatic agent; and the studies of Dr. Sidney C. Werner on the excretion of ketosteroids and gonadotropic substance by normal men and women over long periods of time. Professor Putnam and Professor Scarff have both collected their respective series of hydrocephalic babies treated by cauterization of the choroid plexus. Dr. Roy Swank and Professor Putnam have prepared a review of the subject of amyotrophic lateral sclerosis. The Department has given some help to the project on the physiology of aviation under the direction of Professor Alvan L. Barach.

It is with sorrow that the tragic death of Dr. Landow, a Research Assistant in this department, on March 27, 1942, must be recorded. A number of members of the Department have joined the armed services during the past year.

## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

The total enrollment as of June 30, 1942, was 238 students. The Bachelor of Science degree was conferred on thirty-two graduates of the Department of Nursing on June 2. On June 4 sixty-eight graduates received the diploma of the Presbyterian Hospital School of Nursing.

The fiftieth anniversary of the founding of the Presbyterian Hospital School of Nursing was celebrated from May 31 to June 5.

Another event of major importance was the departure of the Presbyterian Unit, General Hospital No. 2, for duty with the Army, February 15, 1942. Fort George G. Meade in Maryland was their headquarters until June 22, when they left for foreign service.

By action of the University Council, the time credit allowed to college graduates was decreased by one month, which permits students to secure a two-months' affiliation in psychiatric nursing and simplifies their registration as graduates in a number of other states which permit advanced credit of eight, but not nine, months. The Neuro-Psychiatric Institute of the Hartford Retreat, Hartford, Connecticut, is providing the affiliation. This program is optional with the Class of 1944, and it will become fully effective for the college graduates in the Class of 1945.

The basis for the affiliation in public health nursing with the Henry Street Visiting Nurse Service has been changed and, beginning October, 1942, all students will have two weeks of observation on a nonparticipating basis, previously arranged only for the college graduate group.

The Department of Nursing has been affiliated with the accelerated summer program in nursing at Bryn Mawr College for college graduates known as the Red Cross Nurses' Training Camp in 1941, and as the Bryn Mawr College Summer School of Nursing in 1942. Professor Conrad has served as Dean of this special summer session. Of the thirty students enrolled at Bryn Mawr in 1941, five transferred in the fall as members of the Class of 1944 in nursing.

There have been several changes in the teaching staff of the Department of Nursing, and the following have been appointed Instructors: Miss Elizabeth S. Gill; Miss Corinne G. Hogden; Miss Helen Pettit, replacing Miss Eleanor Hall, who resigned to become Instructor in Nursing Arts at the Woman's Medical College Hospital School of Nursing in Philadelphia; Miss Harriet Mantel, taking the place of Miss Helen Roser, who accepted the position of Educational Director at the Neuro-Psychiatric Institute of the Hartford Retreat; and Miss Marie Louis Pedeflous, who was appointed Instructor in Nursing Arts. An arrangement was made for the teaching of psychology by Dr. Mary Wentworth McConaughy as a Visiting Lecturer. This provision for superior instruction by a person of wide experience in this field met with enthusiastic appreciation from both students and faculty.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor BENJAMIN P. WATSON, Executive Officer

The past year has been one of gradual readjustment to conditions arising out of the national emergency. Clinical work in the Department has been handicapped by the resignation of members, both of the house staff and the attending staff, who have entered the medical services of the Army and Navy. Six of the former and three of the latter have already gone. Five other attendings will go very soon, as will eight members of the out-patient department. By a readjustment of the teaching schedules the work has been covered so that the standard of instruction to students has been maintained.

There has necessarily been a curtailment in the activities of certain special clinics, such as the endocrine and fertility clinics, in which studies were being made. Dr. Charles L. Buxton published certain of his observations on "The Effects of Certain Gonadotropic Extracts on Anovulatory Cycles and Amenorrhea"; he has also had published a paper on "Menorrhagia as a Primary Factor in Certain Blood Dyscrasias."

The work of Professor William E. Caldwell, Dr. Howard C. Moloy, and Dr. D. Anthony D'Esopo on pelvic architecture has continued. Dr. D'Esopo has published a paper on "The Occipito Posterior Position"; more recently he has published a paper on "The Causes of Foetal and Neonatal Mortality."

Dr. William E. Pollard, a member of the resident staff, in conjunction with Dr. L. G. Pray and Dr. Hugh S. McKeown, carried out a study on the influence of vitamin K on the bleeding of the newborn. Dr. Pollard also conducted a detailed study on a case of lymphogranuloma which will be published soon.

Dr. David N. Danforth, also a member of the resident staff, has published a study of the "Cytologic Relationship of the Walthard Cell Rest to the Brenner Tumor of the Ovary and to the Pseudomucinous Cystadenoma."

Professor Alvin J. B. Tillman has continued his studies of the pregnancy toxemias and has ready for publication a suggested scheme of classification.

## DEPARTMENT OF OPHTHALMOLOGY

Professor PHILLIPS THYGESON, Executive Officer

Four members of the staff entered the armed forces during the year. Dr. Phinizy Calhoun, Jr., who completed his residency January 1, left with the Presbyterian Hospital Unit in February. The majority of the younger staff members have applied for commissions and are awaiting call. Dr. Ferdinand L. P. Koch resigned to enter private practice in St. Paul, Minnesota, and Professor Richard Thompson resigned to become Professor of Bacteriology at the

University of Colorado. Dr. C. Gregory Barer and Dr. William H. Hanna, both former residents, joined the staff as Instructors, Dr. James L. Boyd as Research Associate, Dr. Corredo Ajo as Research Assistant, and Dr. Alson E. Braley and Dr. Murray Sanders as Assistant Professors.

The activities of the Knapp Memorial Foundation in Ophthalmology increased notably during the year. The new Knapp Laboratory of Physiological Optics, consisting of a large class laboratory, two individual laboratories, a dark adaptation room, and a machine shop, has been in operation since January under the direction of Professor Le Grand H. Hardy. An intensive five-weeks course in physiological optics was given for residents of this and affiliated institutions. Professor John L. Nickerson, of the Department of Physiology, aided with the instruction. Since then the work of the laboratory has been concerned with problems of color vision and dark adaptation in coöperation with the Army and Navy.

Other Knapp Foundation activities have included the laboratory studies of Professor Ludwig von Sallmann, Professor Braley, Drs. Boyd, Myra A. Johnson, and Ajo. Professor von Sallmann completed experiments on the influence of halogens and related compounds on the retina of rabbits, and studies on the iontophoretic application of mydriatics. Professor von Sallmann continued his studies on experimental hypertension in rats. Professor Braley initiated studies in experimental uveitis, employing lymphogranuloma venereum virus and a tubercle bacillus of low virulence, and tissue culture studies of inclusion blennorrhoea virus. He also coöperated with Professor Karl Meyer in a war research project. With Professor Thygeson he reported a study of local sulfonamide therapy of catarrhal conjunctivitis made at Vanderbilt Clinic and at Letchworth Village. Dr. Boyd completed studies on the iontophoretic introduction of sodium sulfathiazole in the eyes of rabbits.

Dr. Johnson, who was Knapp Fellow in Ophthalmology for 1940-41, completed her study on the degeneration and repair of the rat retina in avitaminosis A. Dr. Ajo, Knapp Fellow for 1941-42, completed a study with Professor Meyer on the protein content of the aqueous during the toxic ocular reaction induced by Schwartzman toxins.

The course for residents, covering the basic sciences as related to ophthalmology, was again supported by the Knapp Foundation and extended from January 3 to April 16. The Departments of Anatomy, Physiology, Pharmacology, and Bacteriology generously contributed to the course, which covered the subjects of histology, embryology, gross surgical anatomy of the eye and orbit, physiology, optics, chemistry, pharmacology, bacteriology, and pathology.

The clinical and laboratory research of the Department continued satisfactorily during the year, and there were thirty-six contributions to the eye literature by staff members during the period. Dr. Arnold Knapp, Professor

Emeritus of Ophthalmology, reported on the operative treatment of congenital subluxation of the lens. Professor John H. Dunnington reported on the surgical treatment of strabismus and with Dr. Maynard C. Wheeler analyzed the operative results in 211 cases of convergent strabismus. Professor Algernon B. Reese, with H. Martin, reported on the treatment of retinoblastoma surgically and by irradiation, and with Dr. John S. McGavic published a study on the relation of field contraction to blood pressure in primary glaucoma. With Dr. F. P. Calhoun, Jr., he reported on rhabdomyosarcoma of the orbit. Professor Hugh S. McKeown was a co-author with Drs. L. G. Pray and W. E. Pollard, of the Pediatrics Department, in a study of the hemorrhagic diathesis of the newborn. Dr. Raymond C. Pfeiffer published a roentgenographic study of the orbit with particular reference to exophthalmos.

Professor Meyer, in coöperation with Professor M. H. Dawson and Dr. G. L. Hobby, of the Department of Medicine, continued studies on the isolation and mechanism of action of penicillin and related bactericidal substances. Penicillin was obtained as a crystalline product. Professor Meyer, with Dr. Ajo, investigated the chemical nature of the toxins of Gram negative bacteria having the property of increasing capillary permeability. The John and Mary R. Markle Foundation made a generous grant for Dr. Meyer's studies.

Professor George Smelser reported a study of retrobulbar tissues in experimental exophthalmos with reference to primary and secondary modifications of orbital structures, a study of the production of exophthalmos in the absence of Harder's orbital gland, and a study on the histologic structure of the Harderian gland as it is affected by the pituitary gland, including a study of the lipid components of Harder's gland in frozen sections. Professor Uribe Troncoso reported on his study of the intrascleral vascular plexus and its relation to the aqueous outflow and published the second part of a study on the comparative anatomy of the ciliary body, zonula, and related structures in Mammalia. Professor Troncoso was awarded the Research Medal of the Section on Ophthalmology of the American Medical Association this year.

Professor Thygeson carried on a study on the etiology and sulfonamide therapy of marginal blepharitis and, with Dr. W. Stone, Jr., a survey of chemotherapeutic results at the Institute of Ophthalmology and a study of local sulfathiazole therapy in inclusion blennorrhoea. Studies on the ocular viruses under a grant from the Proctor Fund were continued. Dr. Boyd, under a grant from the Harriman Fund, began a pharmacologic study of the drugs used in glaucoma.

Dr. Michael J. Hogan, of the University of California, completed a five-months study in September in the laboratories of pathology and bacteriology, prior to opening a laboratory of pathology and bacteriology in the eye department in his institution.



## DEPARTMENT OF OTOLARYNGOLOGY

Professor JOHN D. KERNAN, Executive Officer

The undergraduate teaching in the Department of Otolaryngology during the past academic year was continued along the same lines which were laid down in 1941. Small groups of students were assigned to individual instructors in the Vanderbilt Clinic. The teaching in the Department has been a difficult problem due to the number of men who have entered the services.

The hearing and deafness clinic will be used to a greater extent for undergraduate teaching during the coming session. The graduate teaching, which had reached a high peak during the years of 1940-41 and 1941-42 will be, of necessity, somewhat curtailed because of the reduction in the number of residents in otolaryngology in affiliated hospitals.

A considerable amount of laboratory time has been spent in increasing the facilities for research and adding to the collection of lantern slides and microscopic slides of typical pathology in our field. Professor Fowler continued, until he was called to active service, the study of otosclerosis and associated ear conditions. Dr. Franz Altmann has been associated with Professor Fowler in this work and is carrying on experimental investigations of the labyrinthian capsules of birds. Dr. Altmann will continue Professor Fowler's work and, as an additional problem, an histological study on Meniere's syndrome has been undertaken.

Dr. Bruno L. Griesman, collaborating with the Department of Radiology, has been making a planographic study of the larynx, both in normal and in pathological conditions.

Professors Kernan and George R. Brighton have continued the course in the technique of bronchoscopy and oesophagoscopy. During the year two separate courses were given to practitioners in otolaryngology. This course will be offered again in the fall term.

Although the number of instructors and assistants in the Department has been materially reduced it is felt that the teaching of the undergraduate otolaryngology courses will be held to the same plane by more concentrated efforts on the part of the remaining staff.

## DEPARTMENT OF PATHOLOGY

Professor JAMES W. JOBLING, Executive Officer

On October 1, Professor William C. Von Glahn accepted the directorship of the Bellevue Hospital laboratories and the professorship of pathology at the New York University School of Medicine. After Professor Von Glahn's many

years of devoted service to the Department, this well-merited advancement is a cause of rejoicing to his associates and friends, mixed with regret at his departure.

The Department also lost the services of Dr. William H. Carnes, who resigned on September 1, 1941, in order to accept an appointment as Assistant Professor of Pathology at the Stanford University School of Medicine. Dr. Herbert C. Stoerk, Research Assistant in Pathology, was appointed Assistant in Pathology to aid with the teaching. Dr. Philip D. Wiedel left the Department February 1 to start his internship in surgery at the Presbyterian Hospital. Dr. John M. Baldwin, Dr. Jacques Beaubien, and Dr. Ernest M. Evans have completed their assistantships. Dr. Robert A. Kritzler left February 15 with the Presbyterian Hospital Unit, as a lieutenant in the Medical Corps.

Dr. Girard Petersen, from the Department of Radiology, has been working in the Department of Pathology for the past year. Dr. Edwin A. Graber and Dr. Sidney H. Stone assisted in the teaching of the dental students in the course in pathology.

Professor Hans Kaunitz, on leave of absence from the University of the Philippines, has continued his laboratory work and has been appointed Research Associate. Dr. Constantino Mignone, of the University of São Paulo, Brazil, the holder of a Rockefeller Foundation Fellowship, left the Department in January to return to Brazil.

New appointees are: Dr. Roland R. Cross, Jr., from the University of Illinois Research and Educational Hospital; Dr. William L. Hartmann, from Bellevue Hospital; Dr. Donald D. Parker, from Presbyterian Hospital; Dr. William J. Pyles, from Morrisania Hospital; and Dr. Clarence F. Schubert, from Roosevelt Hospital.

Lectures were given during the course in pathology for the second year students by Professor Paul Klemperer, of Mount Sinai Hospital; Dr. J. Gardner Hopkins, Professor of Dermatology; Dr. Richard E. Shope, of the Rockefeller Institute for Medical Research at Princeton; Dr. Maurice N. Richter, Professor of Pathology, New York Post-Graduate Medical School; Dr. William H. Woglom, Associate Professor of Cancer Research; Dr. Lester R. Cahn, Associate Professor of Dentistry; and Dr. David Marine, of Montefiore Hospital.

Professor Hans Smetana has been in charge of the teaching of the dental students, and the lectures to the student nurses have been given by Dr. Edith E. Sproul.

The routine pathological work of the Sloane Hospital for Women has been carried out as in past years under the supervision of Professors Eugene S. Coler and John H. Boyd. Autopsies in the Babies Hospital are performed by Dr. Beryl Paige, who supervises the Babies Hospital post-mortem room.

The regular course in gynecological and obstetrical pathology as given in the senior year has been maintained. A complete new set of microscopic slides

has been used for the past two years. Pathological reports of interesting current cases have been presented to the staff at the bimonthly conference. The Department has been glad to cooperate with other departments in supplying material for research purposes.

The total number of autopsies performed in 1941 was the highest since 1930. Surgical specimens have increased in number also over preceding years. Dr. Frederic N. Silverman, a Holt Fellow in the pathological laboratory, left for service in the Army Medical Corps. Since Dr. Silverman had been of great assistance in performing autopsies and in the examination of surgical specimens, his departure was much regretted.

In addition to fifty-three autopsies from the Neurological Institute, a large number of brains, cords, and surgical specimens from the Presbyterian Hospital, as well as from the Neurological Institute, were examined. During the past year five papers have been published dealing with toxoplasmic encephalitis. Other papers published or in press are concerned with the pathology of murine and cavian poliomyelitis and with the central nervous system in vitamin E deficient rats. A number of investigations of these and other subjects are in progress.

The research problems of the Department are active, and the following may be of particular interest. Dr. David Shemin and Dr. Sproul have been investigating the ability of tumor-bearing animals to synthesize various co-enzyme molecules.

Professor Henry S. Simms has developed a quantitative technique for studying the aging process. Professor Simms has also begun studies on wound healing, in collaboration with Professor Edward L. Howes, of the Department of Surgery, and Dr. Mary S. Parshley. Professor Kaunitz has completed a study on the oxygen consumption of muscle from normal and vitamin E deficient rats and chicks. He has now under way investigations of the total metabolism of vitamin E deficient animals and protected controls at all states, from infancy to maturity. Dr. Dorothy H. Andersen has continued her investigations of celiac disease in infancy with the aid of a grant from the Commonwealth Fund. Professor Homer D. Kesten has continued his work begun during the previous year on the effects of soya lecithin on experimental cholesterol arteriosclerosis in rabbits. Dr. Baldwin has assisted Professor Kesten in this work. Dr. Beaubien has taken up a problem begun by Dr. Kritzler and carried on in collaboration with Professor Alexander B. Gutman, of the Department of Medicine, on the effect of various experimental procedures upon the alkaline phosphatase of the liver.

Professor Theodore F. Zucker is continuing his detailed analytic studies on the effect of variable calcium and phosphorus intake on bone and body growth. With the collaboration of Dr. Benjamin N. Berg, the nutritional gastritis of rats is being investigated. Dr. Zucker is also engaged in nutritional

studies on the protein and B-complex of various oil-bearing vegetable seeds. Dr. Herbert C. Stoerk has been interested in the effect of dietary influences on the volume of the thymus gland. There are indications that the size of the thymus is strongly influenced by the phosphorus content of the diet. Dr. Beryl H. Paige has collected a series of cases of the Arnold-Chiari malformation. She plans to collaborate with Dr. David Cowen and Professor Boyd in a publication on this interesting condition.

Professor Smetana is studying the renal excretion of various proteins coupled with R salt and their reabsorption by the renal tubules of mammals. A study on the origin and fate of colloid droplets and lipid droplets in the epithelial cells of the renal tubules is in press and will be published in the *American Journal of Pathology*. A clinical and pathological study on the significance of intercapillary glomerulosclerosis by Dr. Robert C. Horn, Jr., and Professor Smetana was published in the *American Journal of Pathology* in January, 1942. Mrs. Julia T. Weld is studying with Mrs. Lucy C. Mitchell the agglutination of rabbit leucocytes by staphylococcus aureus toxin. Dr. Saul Jarcho has organized a very successful student seminar in the history of medicine. There were eight meetings, and nineteen papers were presented and discussed. Dr. Hugo Hellendall, working with the collaboration of Professor Murray Sanders, of the Department of Bacteriology, has studied the transmission of the virus lymphogranuloma venereum to the fetus. Professor Alwin M. Pappenheimer has continued his work on vitamin E deficiency.

Assistance toward the research work of the Department has been received from the following sources: the John and Mary Markle Foundation; William R. Warner and Company; University Patents, Incorporated; Traders Oil Mill Company; Mrs. Julia T. Weld; American Lecithin Company; Emergency Committee in Aid of Displaced Foreign Medical Scientists; William J. Matheson Commission; Josiah Macy, Jr., Foundation; Hoffmann-La Roche, Incorporated; Dr. Marvin R. Thompson; Child Neurology Research; Commonwealth Fund; Fund for Wound Healing from the Office of Scientific Research and Development.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN McINTOSH, Executive Officer

Professor A. Ashley Weech, who has been a member of the full-time staff of the Department since 1930, has been called to the B. K. Rachford Chair of Pediatrics in the University of Cincinnati. He will be at the same time chief of staff and medical director of the Children's Hospital of Cincinnati, director of the Children's Hospital Research Foundation, and director of pediatrics

and contagious diseases in the Cincinnati General Hospital. It would be impossible to exaggerate the importance of Professor Weech's participation in the work of this department, as a teacher, as investigator in the field of biochemistry applied to pediatric problems, and as clinician. The esteem and affection in which he is held by his colleagues lend particular warmth to the good wishes which will accompany him to his new position of important responsibility and opportunity.

Professor Donovan J. McCune has been promoted to an associate professorship and will take Professor Weech's place as director of the biochemical laboratory of the Babies Hospital. Professor McCune has recently been elected to membership on the American Board of Pediatrics.

Dr. James M. Sturtevant resigned in March owing to a change of residence. Professor John Caffey, while on leave of absence during the fall term, carried out studies of the physics of Roentgen rays at the University of Michigan and at the University of California.

During October, the members of the staff at the Babies Hospital entertained the Southern Pediatric Seminar, a group of pediatricians from the Southeastern states.

Professor Weech continued his assays of the nutritional value of a variety of protein-containing foods with respect to their ability to promote the regeneration of serum albumin. Professor McCune, with the assistance of Dr. Beridge Robertson, the Koplik Scholar, has been studying the factor of selective ionic excretion by the kidneys in relation to disturbances of bone growth and metabolism. In collaboration with Dr. Elvira Goetsch, Professor John D. Lyttle has been making a study of amino-acid metabolism in normal subjects, in nephritis, and in disturbances of liver function. Partly in collaboration with Professor McCune, Professor Howard H. Mason has continued his studies of mechanisms of intermediary metabolism of carbohydrates. Dr. Jorgensen and Dr. David M. Greeley demonstrated the practicability of administering sodium sulfadiazine subcutaneously for therapeutic purposes.

Dr. Hattie E. Alexander has extended her studies of diseases caused by *haemophilus influenzae* to include a variety of syndromes in addition to the influenza bacillus meningitis emphasized in last year's report. Therapeutic results in this field now show a very striking improvement over those obtainable only a few years ago. Her investigations have been supported in part by the Commonwealth Fund, in part through a grant allocated from Government funds. Dr. Alexander is a consultant to the Commission on Influenza of the Board for the Investigation and Control of Epidemic Diseases in the Army.

Professor Beryl H. Paige, collaborating with Professor Abner Wolf, Dr. David Cowen, and others, has extended her studies of human toxoplasmosis.

Of particular significance have been the studies of the ocular manifestations of this disease, and of serological reactions designed to extend the scope of clinical diagnosis. Dr. Dorothy H. Andersen, with the support of a grant from the Commonwealth Fund and with the assistance of Dr. Richard G. Hodges, has pursued her studies of the celiac syndrome and, through the application of biological methods of study, many of them newly perfected in the course of the work, has brought fresh light on the pathologic physiology of this condition. In collaboration with Dr. Earl S. Taylor, Dr. Hodges made a survey of the experience of the Babies Hospital with cases of acute appendicitis and analyzed the factors which have led to improvement in therapeutic results in recent years.

In addition to the gifts already mentioned, welcome assistance has been rendered to the work of the Department by Mr. William H. Radebaugh, and by the Williams Waterman gift of the Research Foundation.

## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

A number of changes have occurred in the staff during the past year. Professor Ernest L. Scott retired from active teaching at the end of the academic year. Dr. Harold C. Wiggers, Instructor, resigned to become Assistant Professor of Physiology at Western Reserve Medical School. Dr. Octa C. Leigh, Instructor, was called to active duty as a captain with General Hospital No. 2. Dr. John R. Pappenheimer, Instructor, has left to carry on aviation research for the armed forces at the University of Pennsylvania. Dr. Harold Abramson, Assistant Professor has recently been commissioned as a major in the Chemical Warfare Division of the Army, where he will serve as a liaison officer. Dr. Asher Treat, Instructor, is awaiting his commission as a lieutenant with the oxygen indoctrination unit of the Army. Dr. Julian P. Maes, visiting scholar from Belgium, who collaborated with Dr. Pappenheimer for several months, left in January to join the Department of Physiology of the University of Vermont.

New appointments include that of Dr. George Marmont, who had been Dr. Kenneth S. Cole's assistant during the previous year, to be Research Assistant under a grant from the Rockefeller Foundation. The appointment of Dr. Robert Noble as Research Assistant under a grant from the Josiah Macy, Jr., Foundation has made it possible to continue the studies of human cases of shock at Bellevue Hospital in which Dr. Leigh had been engaged.

Changes in the program of teaching have been seriously curtailed by the war, but it has been possible, so far at least, to preserve the principal features that have been developed during the past two or three years.

Professor Cole has spent most of the year at the Institute of Advanced Study in Princeton under a Guggenheim Fellowship, studying primarily the mathematical aspects of nerve conduction. His work here in the laboratory has been carried on by his assistant, Dr. Marmont, much of the work being done under a grant from the Rockefeller Foundation.

Professor Walter S. Root and Dr. F. F. McAllister, surgical intern at the Presbyterian Hospital, completed further studies on the effect of ether anesthesia on the circulation of dogs. Dr. Francis C. Keil, Jr., of the New York Eye and Ear Infirmary, who had collaborated with Dr. Root in the investigations on parasympathic sensitization in the cat's eye, received the degree of Doctor of Medical Science. Dr. Barry G. King, Assistant Professor, and Mrs. Enid T. Oppenheimer have carried out further studies on the rate of disappearance of the dye T-1824 from the blood stream in dogs.

During the past year Drs. Pappenheimer and Maes completed a study of the circulation in muscle, resulting in a method of measuring the vasomotor tone. Dr. Wiggers investigated the fall in blood pressure produced in dogs by small doses of adrenalin and found it to be caused by changes in the pulmonary circulation. Dr. Shih-Chun Wang reported his findings on the location of the salivary centers in the medulla. Dr. Abramson published an important book on electrophoretic phenomena and several books on allergy.

Most of the investigative work in the Department has been devoted to the study of traumatic shock. This work is being carried on under contract with the Office of Scientific Research and Development. Additional support for this and related studies has been received from the Josiah Macy, Jr., Foundation. Through special procedures developed by Professors Gregersen and Root it has been possible to correlate the clinical symptoms of shock resulting from muscle trauma with the physiological changes which give rise to these symptoms. Considerable progress has been made in determining which of the physiological disturbances are fundamentally important in the development of shock. These studies have been carried out under the direction of Professor Gregersen with the collaboration of Professors Root, Howard J. Curtis, Joseph H. Holmes, and John L. Nickerson, Dr. Elizabeth L. Painter, Mr. William W. Walcott, Mrs. Marjorie B. Zucker, and others. The results of the investigations on traumatic shock have been incorporated in monthly reports to the Committee on Medical Research of the Office of Scientific Research and Development and will be published shortly.

In addition to the experimental studies in the laboratory, Professor Gregersen and Dr. Noble are collaborating with Professor Dickinson W. Richards, of the Department of Medicine, Dr. Homer Smith, Professor of Physiology at New York University, and others in a study of the physiological changes in human cases of shock at the Bellevue Hospital.

## DEPARTMENT OF PHARMACOLOGY

Professor CHARLES C. LIEB, Executive Officer

A number of changes have occurred in the teaching staff. Dr. Alan Leslie, Instructor in Pharmacology, was commissioned a lieutenant in the Medical Corps of the United States Naval Reserve and called to active duty in February. He was assigned to Pensacola, where he is studying aviation medicine. Dr. Clifford Spingarn has received a commission as lieutenant in the Navy Medical Corps and reported for duty on June 12.

It is with deep regret that the resignation of Dr. Harold Thomas Hyman, Associate Professor of Pharmacology, is reported. Professor Hyman has been connected with the Department for twenty years and during his service has contributed greatly to the teaching of applied pharmacology.

Dr. Mary E. Lojkin, Research Assistant, resigned to take a position with the Boyce Thompson Institute, where she is studying the chemistry of viruses. She has been succeeded by Miss Esther Maculla.

The following lines of research were pursued during the past academic year. Professor Michael G. Mulinos and Mr. Leo Pomerantz have continued their work with pseudohypophysectomy (inaniition) and starvation and the effects upon the endocrine organs. Professor Mulinos and Mr. Pomerantz have observed that the adrenal cortical hormones have a marked accelerating effect on the rate of eye opening and tooth eruption in newborn rats. It is of interest also that another hormone, estrogen, has a similar accelerating effect upon the vaginal membrane of the young rat.

Professor Mulinos, Mr. Pomerantz, and Dr. Lojkin have completed their work on the ascorbic acid content of the adrenal glands and liver of the rat. Professor Mulinos, Mr. Pomerantz, and Miss Maculla are continuing their work on the causation of the adrenal cortical hypertrophy during the last days of starvation. Professor Mulinos and Dr. Clifford Spingarn, with the aid of Miss Maculla, have continued their work on water balance under the influence of certain hormones.

Under a grant from the Upjohn Company, Professor Mulinos is continuing the investigation of some twenty sympathomimetic amines. These are being studied on blood pressure, intestine, and on the human nasal mucosa.

With the aid of Dr. Sidney C. Werner, of the Department of Medicine, a study is being made of the effect of the adrenal cortical hormones on the basal metabolic rate of dogs. We are indebted to the Ciba Pharmaceutical Company, which has supplied the adrenal cortical hormones, and to Parke Davis and Company for the pitressin.

Professor Mulinos and Dr. Leslie have continued their studies on experi-



mental coronary occlusion, and two papers are to appear in the *American Heart Journal*.

For the first time in the course for the medical students several exercises on the pharmacology of the endocrine organs were instituted. It becomes increasingly evident that the already large field of pharmacological endeavor has been developed by the isolation and synthesis both of the hormones and of the various vitamins. With the introduction into chemotherapy of the sulfonamide group of drugs the teaching of pharmacology must enter the field of chemotherapy in a much fuller sense than hitherto. It should be possible, with the coöperation of the Department of Bacteriology, to demonstrate to the students the potency of these drugs in curing animals injected with fatal doses of the various organisms against which the sulfonamides are effective.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

The work of the Department of Psychiatry during the past year has reflected the changes taking place in similar departments in other hospitals and universities, and has called for corresponding adjustments. The activities of the Psychiatric Institute have not been reduced to any great extent. Although a number of staff members have entered the armed forces, replacements have been possible up to the present time. In the Presbyterian Hospital, in spite of changes in the psychiatric staff, the general routine has been carried out as in former years. There were forty-seven psychiatrists associated with the Department of Psychiatry at the Vanderbilt Clinic during the last year. An average of 158 patients per month was seen. In the psychological division, 232 psychometric tests and forty-two Rorschach tests were given. Group psychotherapy has interested some members of the staff.

Members of the staff have coöperated with the civil defense authorities and with the Emergency Committee of Neuropsychiatric Societies and have aided in the formation of a new clinic for returned service men at the Red Cross building.

No major changes have been made in the student teaching plan during the past year. Special courses have been given on the psychoneuroses and on psychiatric aspects of endocrine conditions, and a large number of lectures and papers has been given by various members of the staff. Several of these have dealt with war neuroses and psychoses.

The members of the Department during the past year have published more than one hundred papers. These works represent investigations in the fields of genetics, experimental neurology, experimental psychology, nutrition, neurochemistry, immunity, neurophysiology, neuropathology, epilepsy, and clinical

psychiatry. Many of these researches are the result of interdepartmental collaboration. The human sex biology research had to be drastically curtailed. Professor George E. Daniels gave a communication on "An Approach to Psychological Control Studies of Urinary Sex Hormones," representing a study made with Dr. Sidney C. Werner, of the Department of Medicine, before the Section on Neurology and Psychiatry of the New York Academy of Medicine in December, and before the American Psychiatric Association in May.

Before leaving for duty in the service, Dr. Kenneth Kelley completed an extensive review of the literature on "Sterility in the Female with Special Reference to Psychiatric Factors" which was published in *Psychosomatic Medicine*, April, 1942. Dr. Kelley also brought near to completion a clinical study in this same field, made in coöperation with the sterility clinic.

A project for clinical study of the personality in male peptic ulcer cases with special reference to selective service had to be discontinued because of Dr. Kelley's departure. Considerable literature preparatory to the study was reviewed by Dr. Viola W. Bernard and was used for staff discussion and put at the disposal of the Josiah Macy, Jr., Foundation, which originally had sponsored the project. It is hoped that this work may be continued later in some form, as the English and Canadian experience points to the prominence of gastrointestinal disorders during the present war, and emphasizes the importance of excluding from active duty those who have previously suffered from demonstrable ulcer.

Dr. Giles W. Thomas has continued to follow cases of rheumatoid arthritis which were studied psychoanalytically. Dr. Thomas has also just completed for publication a careful review on group psychotherapy, aid for which was obtained through the Josiah Macy, Jr., Foundation. The depletion of psychiatrists in the civil population and the necessity of preparing for the handling of great numbers of psychotherapeutic problems as an aftermath of active service make it imperative to explore means of multiplying the psychiatrist's experience and usefulness. Group psychotherapy also seems to represent a medium which has unique potentialities and which may be able to make contributions unobtainable through individual psychotherapy alone.

Dr. Flanders Dunbar, assisted by Dr. A. Louise Brush, has devoted her time almost exclusively to organizing and writing up the study of the preceding ten years dealing with psychological components of various physical diseases and following cases studied during this period. Dr. Brush has also continued her special study of patients having hypertensive cardiovascular disease in the research clinic under Dr. Dana Atchley.

Dr. Ruth Moulton, under Professor Daniels's direction, has completed an extensive review of the literature on pseudocyesis, including pertinent animal experimentation on ovulation and a report of clinical material which will be

published. She is also following the literature on present developments in the endocrine field for the Department. Dr. Moulton has been carrying on the study of vaginal smears, by the method of Papanicolaou, and the problem of defining the limits and uses of the vaginal smear method, particularly as it is applied to psychological correlates. A report of three cases of anorexia nervosa was published.

Dr. Edward I. Strongin and Mrs. Nina Bull, Research Associates, have continued their study on the effect of emotional situations on visual performance. They have been especially concerned with the use of these findings in the selection of aircraft personnel.

The National Board of Fire Underwriters has furnished a fund to the Department of Psychiatry for the special study of pathological fire setting (pyromania). There is evidence to indicate that between 15 and 20 percent of incendiary fires are caused by psychopathological individuals. A thorough evaluation of the pertinent literature on this subject and a detailed investigation of the personality and lives of criminals of this type in prisons, hospitals, and other institutions have been under way during the past six months. This may afford a better understanding of the problems and ways of exercising preventive measures. Dr. Helen Yarnell, Research Associate, has been assigned full time to this work.

## DEPARTMENT OF RADIOLOGY

Professor ROSS GOLDEN, Executive Officer

Professor Robert P. Ball and Dr. Arthur F. Hunter have been granted leaves of absence and are now with General Hospital No. 2. Dr. Gerald M. Peterson has joined the Naval Medical Corps.

Professor Golden read a paper at the meeting of the American Medical Association on small intestinal disturbances associated with vitamin B deficiency and with Dr. Michael J. Lepore has written a paper on a syndrome due to a deficiency of the vitamin B complex. He has addressed several other societies, including the New Orleans Post-Graduate Medical Assembly and the Detroit Roentgen Society.

Professor Paul C. Swenson was appointed secretary of the New York Roentgen Society. He read a paper before the American Gastroenterological Society in New York on the neoplasma of the small intestine.

Professor Murray M. Friedman has published "Evaluation of the Roentgen Kymogram in the Study of Diseases of the Heart and Great Vessels." He is preparing a manual of radiotherapy technique, a paper on neurofibromatosis of bone, and another paper on the technique and theory of planigraphy with special reference to the larynx.

Professor Ball, with Professor Walter W. Palmer and Professor Virginia

Kneeland Frantz, of the Departments of Medicine and Surgery, and Professor Homer D. Kesten, of the Department of Pathology, has prepared a report on a study of a case of carcinoma of the thyroid with bone metastasis after the ingestion of artificially radioactive iodine, in which localization of the radioactive iodine in the metastasis was demonstrated.

Dr. Hunter read a paper on the x-ray treatment of keloids and hypertrophic scars at the midwinter conference of the Eastern Radiological Societies.

Professor Cornelius G. Dyke is preparing a book on Roentgen therapy of neoplasma of the brain. Professor Maurice Lenz is in the process of editing a textbook on radiotherapy.

## DEPARTMENT OF SURGERY

Professor ALLEN O. WHIPPLE, Executive Officer

The Department of Surgery, in common with all other departments of the School, is faced with the problem of increased duties with a greatly reduced staff. Forty members of the Department have enlisted and have left for military duty. This splendid spirit is commended, but equally appreciated is the extra burden the men who were past the age for enlistment have assumed in taking over the added duties of teaching and conducting the surgical services in the several hospitals affiliated with the University. The enlistment of the majority of the resident staff has caused the disruption of our long-sought and gradually developed residency program which is one of the most serious problems at the present time.

In addition to the continuous teaching program for the undergraduates the Department will give graduate instruction in wound healing and in plastic surgery to groups of Army medical officers. Because of these additional teaching assignments and a greatly reduced staff it has been necessary to curtail certain of the staff activities.

Much of the research work of the Department had to be deferred because of reduced staff. However, two projects under the National Research Council, Office of Scientific Research and Development, are being conducted.

We have been very fortunate in the return of Professor Adrian V. S. Lambert to take charge of the First Division Chest Service at Bellevue Hospital in the absence of Professor Frank B. Berry, who is in military service as surgical head of the Roosevelt Hospital Emergency Hospital Unit.

Three members of the Fracture Service are in military service. Dr. Stephen S. Hudack is with the Naval Medical Corps. After several months of work on the Fracture Ward at the Naval Hospital in Brooklyn, he was transferred to a mobile hospital, at present on active duty. Dr. Barbara B. Stimson left September 1, 1941, for active duty in England under the auspices of the American Red Cross. Later she was given a commission as a major in the

Royal Army Medical Corps and has been on duty in the military hospital in Shenley. Dr. Frank E. Stinchfield left with the Presbyterian Unit, General Hospital No. 2. Under grants from the National Research Council the Fracture Service is taking part in a study in coöperation with Professor Colin Fink of the Department of Chemical Engineering of Columbia University. Professor William Darrach is a member of the Subcommittee on Orthopedics of the National Research Council.

The research in growth of the extremities and of the disturbances in growth due to disease and congenital malformations has been continued by Dr. Gerald Gill and Dr. Lawson E. Miller at the New York Orthopaedic Dispensary and Hospital. An important development is the perfection of a new x-ray technique for exact measurement of the extremities. All the former work in this field has been handicapped by the lack of any accurate means of measurement, and we believe that this new method will prove to be of great value. Dr. Gill also has devised what appears to be a fairly exact method of predicting, at any age, the ultimate growth of a child. This is of the greatest importance in planning any treatment for the equalization of length in cases in which one extremity is shorter than the other. It is regretted that this very promising and fruitful research has been interrupted by Dr. Gill's departure for essential war work and Dr. Miller's leave for military service. In the undergraduate teaching of orthopedic surgery, emphasis is being placed upon those subjects which will be important in war.

Professor Whipple delivered the Henry Jacob Bigelow Medal Lecture at the joint meeting of the Boston Surgical Society and the American College of Surgeons at Boston, November 7, 1941. The title of the presentation was "Present-Day Surgery of the Pancreas."

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

During the year 1941-42 the Department has faced a diminution in the teaching personnel. Dr. Charles T. Hazzard has been continuously active in the medical service of the United States Navy. Dr. John N. Robinson has been granted a leave of absence to become urologist to United States General Hospital No. 2 and was called into active service with that unit. Dr. Alexander Preston has been granted a leave of absence and has entered the service of the United States Army.

The undergraduate teaching is being reorganized to carry on the curriculum during the Summer Session and, to function adequately, will of necessity have increased use of students in direct work upon the wards.

The program of graduate education has been continued. Dr. Myrwood B. Sutton, having completed his work under Professor Earl T. Engle in the

Department of Anatomy, was granted by the University the degree of Doctor of Medical Science in February, 1942. Dr. Dyce A. Duckworth, under the same guidance, completed his investigation and service otherwise and received his degree of Doctor of Medical Science in June.

As candidate for the degree of Doctor of Medical Science Dr. Lloyd L. Wells has completed his work in the Department of Physiology under Professor Walter S. Root, and Dr. John K. Lattimer has completed his investigation in the Department of Anatomy under Professor Earl T. Engle upon the action of testosterone propionate upon the kidneys of rats, dogs, and human beings.

Dr. Thomas J. Sullivan has been working with Drs. Hattie E. Alexander and Ethel B. Gutman on the effect of castration on the serum acid phosphatase in cases of prostatic carcinoma. Dr. Ole J. Jensen is engaged in investigations as to the effect of the renal excretion of sulfadiazine in the sodium salt under the direction of Professor A. R. Dochez, of the Department of Bacteriology.

The members of the Department continue to collaborate with other departments in investigative problems. Papers have been published and presented during the year before many of the medical societies by members of the urological staff on various problems.

## MEDICAL LIBRARY

THOMAS P. FLEMING, Librarian

The medical library, like other libraries in the University system and throughout the country, has felt the full impact of an excessive turnover in staff and an almost total lack of current European literature. In addition, there has been an unusually heavy depletion in the number of our patrons due to entrance into the armed services and the consequent reduction of research work on the part of those who remain.

Mr. John M. Connor, Reference Assistant, was granted a leave of absence in December to become assistant and later director of the Victory Book Campaign sponsored by the U.S.O., the Red Cross, and the American Library Association. Mr. Joseph M. Silver, a graduate of the Columbia University School of Library Service, has been appointed to the staff during Mr. Connor's absence.

The Medical Librarian completed and published a "Survey of the Medical Libraries in Boston," financed by the Carnegie Corporation. He also made a "Survey of the Resources of Medical Libraries in the New York Area," which will be published in the *Survey of Resources of New York City Libraries*, also financed by the Carnegie Corporation. He has served as a member of the Committee on Indexing for the Library of the American Dental Association. In addition, he has served as chairman of the Joint Committee on Importa-

tions, representing seven national library associations. This committee is responsible for the selection and allocation of enemy publications for all non-governmental libraries and research laboratories in the United States. During the year, two trips to Bermuda were made in order to release Axis publications consigned to American libraries but detained by the British censorship authorities at Bermuda.

Miss Estelle Brodman, Reference Assistant, served as chairman of the Committee on Reorganization of the Special Libraries Association, and has held numerous other committee appointments. The bibliographic service under the direction of Miss Brodman continues in effectiveness, although the loss of numerous German bibliographic tools has made completion an impossibility. During the year 7,688 references to current literature were supplied on 110 different subjects.

The situation regarding cataloguing arrearages, mentioned in previous reports, has been somewhat improved. Although the Webster library, the world's most outstanding collection of plastic surgical literature, consisting of more than twelve thousand volumes, has been in the possession of the library for over three years, it still remains uncatalogued with the exception of some three hundred volumes. Now that the United States armed forces are beginning to suffer casualties, the subject of plastic surgery assumes unusual importance.

Through the generosity of Professor Hugh Auchincloss, the library was able to purchase a copy of John Jones's *Plain, Concise, Practical Remarks on the Treatment of Wounds and Fractures; To Which is Added a Short Appendix on Camp and Military Hospitals, Principally Designed for the Use of Young Military Surgeons* (New York, Holt, 1775). This, the first surgical work printed in what is now the United States, was written by our first Professor of Surgery in King's College (now Columbia). It is likewise the first book published in this country on military surgery.

An outstanding collection of publications by or about John W. Francis was acquired. The collection was made by Claude de la Roche Francis, his grandson, as a preliminary step toward the publishing of a definitive biography. Of the utmost importance are three volumes of notes on the lectures delivered at the College of Physicians and Surgeons during its third session, 1809-10.

The mystery of the disappearance of copies of the theses by the early medical graduates has now been solved. The New York University Medical Library presented us with a copy of the thesis by Lewis A. Sayres (P & S, 1942) in which was a letter from Dr. John C. Dalton, stating that the College was moving (probably to 59th Street), and that the "old accumulations" were being cleared out and that where possible, theses were being returned to the authors.

The generosity of alumni, Faculty, and friends is in large measure re-

sponsible for the excellence of our collection in many fields. Dr. Julius Jarcho contributed fifty dollars to the medical library book fund, and Dr. Hugh Auchincloss donated seventy-five dollars so that we might acquire the work on surgery by John Jones, already mentioned. From funds previously contributed by Dr. Jerome P. Webster, the library expended five hundred dollars in the purchase of books relating to plastic surgery.

The Phi Delta Epsilon Fraternity gave an additional contribution of fifty dollars for the purchase of books as a memorial to Dr. Jacob Braun, P & S, '05. The Departments of Cancer Research, Otolaryngology, and Neurology all made substantial contributions toward the purchase of books and periodicals.

## NEW YORK POST-GRADUATE MEDICAL SCHOOL

Dr. WILLARD C. RAPPLEYE, Director

The 554 physicians enrolled in the School during the academic year 1940-1941 came from forty-one states and four territories of the United States and from nineteen foreign countries. The increased enrollment from Latin American countries is of particular interest.

The use of the library continued to increase, as is shown by the fact that there were 7,656 books loaned for home use during the school year, compared to 6,289 in the previous academic year. The number of visits of readers totaled 16,031, compared to 14,527 in the previous year.

Under a grant from the Oliver-Rea Scholarship Fund the study of infections was continued by the Department of Bacteriology, with special attention to viridans endocarditis and the therapeutic use of bacteriophages. Studies on experimental endocarditis and on filterable viruses and the control of virus diseases of the respiratory tract were also continued with the aid of grants from other sources.

In the fall of 1941 there was again a large class to begin the three-year course of training for specialization in dermatology and syphilology. There was also an increase in the enrollment of specialists in dermatology for advanced instruction. In addition to carrying on this heavy teaching schedule, members of the staff of the Department completed seventy-two research projects. Perhaps the most important were those on the following subjects: respiration of human keratoses and cancers; the field of distribution of radiation and determination of the practical advantages and disadvantages of shock-proof x-ray apparatus designed for dermatological therapy; the influence of wetting agents and other surface-tension lowering substances upon increase in skin penetration, and the study of blood lipids with new technique, in samples in which complete lipid fractions were determined.

In addition to carrying on the usual teaching program of the Department of Gynecology, two important investigations were begun early in 1941: the



diagnosis of uterine and cervical malignant disease by means of vaginal smears stained with newly developed preparations, and the physiological and pathological effects of vaginal occlusion during menstruation.

The Department of Medicine carried on its usual heavy program of full-time and part-time courses, which were well attended. A part-time course in gastroscopy was given for the first time during the year. A clinic for the study of psychosomatic medicine was developed in order to improve the teaching of this subject, which is included in the general seminar in internal medicine. A new clinic for the study of geriatrics was organized because of the increasing interest in diseases of old age.

In addition to continuing many of the subjects of research which were reported last year, the Department of Medicine initiated many new studies, among which the following may be of special interest: x-ray therapy in Marie Strumpell arthritis, uric acid levels in arthritis, a pathological study of fibrositis, effect of methyl-testosterone, the excretion of 17-ketosteroids in various endocrinopathies, skin temperature studies as a means of differentiating hyperthyroidism and psychoneurosis, psychosomatic aspects of so-called cardiac pain, the effect of furfuryl trimethyl ammonium iodide as a vasodilator, case studies of pachydermatitis and pachyperiostosis, nutrition studies of natives of the Newfoundland coast, iodine metabolism, and epinephrine metabolism.

The members of the staff in the Departments of Neurology and Psychiatry were called upon for a considerable amount of teaching in interdepartmental courses, in addition to the courses offered by this department. After the Hospital had acquired the necessary apparatus, they began electronencephalographic studies. Other new lines of inquiry included evaluation and follow-up studies of such new therapeutic methods as vitamin E, insulin, metrazol, and various forms of shock therapy. With the coöperation of the Department of Pediatrics, studies of behavior problems in children and various phases of mental and physical developments of children were begun.

The advanced courses for specialists in ophthalmology were developed during the year, and a new continuation course in ocular muscles was added to the curriculum.

The Department of Orthopedic Surgery again offered several courses for general practitioners and a seminar for surgeons. Clinical studies were continued, with special attention to the development of operative techniques and therapeutic methods in the surgical treatment of arthritis, and to chemotherapy in relation to orthopedics.

Teaching done by the Department of Otolaryngology comprised several individual courses for specialists, as well as participation in courses offered by other departments.

The Department of Pathology arranged special instruction for several physicians from South America and participated in many courses offered by

other departments. Special courses were given in surgical pathology and in the pathology of eye, ear, nose, and throat.

In the Department of Pediatrics the studies of rheumatic fever were continued, with special attention to immunization with streptococcus toxoid. Members of the Department also conducted research in otitis media and mastoiditis, thrombocytopenic purpura in children, and protective antibodies in pertussis.

The Department of Radiology again conducted a course in basic radiological diagnosis and a course in radiotherapy, as well as taking an increased part in courses sponsored by other departments.

In response to a demand from surgeons in the metropolitan area, the Department of Surgery instituted a part-time advanced course in gastrointestinal surgery. This course was again given specialists in the early months of 1942. Members of the Department continued many studies, chiefly of a clinical nature, in the various special clinics conducted by this department.

In addition to the courses in the regular curriculum for general practitioners and for surgeons, the Department of Traumatic Surgery gave courses in first aid for physicians and nurses on the Post-Graduate staff during the fall and winter. Investigations conducted by the Department concentrated on the treatment of burns and the use of sulfa drugs in the treatment of wounds.

Courses were individually arranged by the Department of Urology for a number of qualified specialists.

The continued high enrollment of physicians is a matter of gratification to the School and a tribute to the devotion and efforts of the staff. Despite the number of members of the teaching personnel who have gone into service, courses in all essential phases of postgraduate instruction have been continued. A considerable number of older physicians have come for refresher courses as they prepare to resume more active practice in their local communities when the younger doctors leave for military duty. A group of women physicians has also enrolled, as they too endeavor to do their part professionally in the war effort by relieving young men for service.

It is to be expected that the continued withdrawal of men from civilian practice will reduce the enrollment of matriculates, especially as the demands upon local doctors increase.

All departments are aware of the likely demand for postgraduate instruction at the close of the war when doctors return to civilian life. The character and content of teaching will be modified to meet the needs of that period.

The number of inquiries from Latin America continues. The need of financial assistance for many of these students, due in part to the unfavorable international exchange, is urgent if we are to contribute as fully as the opportunity presents to the development of stronger inter-American cultural, scientific, and professional ties.

## SCHOOL OF TROPICAL MEDICINE\*

Professor PABLO MORALES OTERO, Acting Director

The resignation of Dr. George W. Bachman, Director and friend of the School which he so faithfully served for the past ten years, is recorded with great regret. From the very beginning, Dr. Bachman kept before him a broad and liberal vision of what the School should stand for and represent in the community it would serve, as well as abroad—an opportunity for concerted action in education and research which might help to link better the Americas and to work toward a better communion among the peoples of this hemisphere. During the ten years Dr. Bachman was in office, he gave himself unstintingly to the great task before him and, through his efforts, was able to build up the splendid physical plant which today remains as a monument to his endeavors. Dr. Bachman has left for other fields and, in his desire to share in the present world conflict, is today representing the American Medical Bureau for Medical Aid to China, where he will help in the reconstruction of that war-torn country.

At the commencement of hostilities, December, 1941, a Central Committee for Civilian Defense was assigned to Puerto Rico, and the Acting Director of the School was appointed a member of the Medical Committee, charged to direct all educational activities relative to the instruction of civilians in medical matters, the School of Tropical Medicine to be the center for such work. With this end in view, courses were organized and offered to professional nurses for work in civilian defense, and under the direction of the American Red Cross with the coöperation of the American Legion, 100 classes in first aid, with an average of thirty members to each class, were held in and around San Juan. In addition, the Department of Bacteriology of the School trained fifty technicians from various parts of the Island in the technique of blood typing. Courses were also offered for the preparation of public health workers in civilian disaster relief.

Mr. Felix Lamela, Executive Secretary of the School, was at the time appointed member and secretary of the Medical Committee. One of his first activities was the organization of a blood bank for Puerto Rico. Dr. John Scudder, director of the blood bank at the Columbia-Presbyterian Medical Center, was granted leave of absence to go to Puerto Rico to establish a similar set-up. The blood bank is now in operation and has been temporarily installed in one of the wings of the School, functioning as a separate unit under an advisory board appointed by the Director of Civilian Defense. The project in itself has aroused much interest, since the bank is the first of its kind established in a tropical area. Different atmospheric and environmental conditions

\* For details see Report of Acting Director of School of Tropical Medicine.

have had to be dealt with in its operation. However, the Caribbean area, long in need of such an organization, fully appreciates its import.

As part of the work assigned to it by civilian defense, the University Hospital of the School will be conditioned as an emergency unit in case of disaster, at which time it will be possible to double the number of beds.

A provisional committee for organizing a local association of the American Public Health Association was appointed, with Dr. James A. Doull, Consultant in Epidemiology, as chairman, and Dr. Guillermo Arbona, Associate in Public Health Practice, as secretary. A large membership was recruited, and the first annual meeting was held during the twenty-third and twenty-fourth days of September of that year. This meeting was attended by Dr. Reginald Atwater, executive secretary of the American Public Health Association.

Among the members of the Faculty receiving honors were Dr. Ramón M. Suárez, head of the Department of Clinical Medicine, to whom the Medical College of Virginia awarded the degree of Doctor of Science; Dr. Arturo L. Carrión, who was invited to address the annual meeting of the Mycological Society of America, held in Dallas, Texas, in December, 1941. Dr. Carrión is the first Puerto Rican to have been thus honored. Likewise, Dr. Enrique Koppisch has been asked to present a paper at the meetings of the American Medical Association.

Visitors have been few in number during the year. However, the following persons have visited the School: Sir Rupert Briercliffe, medical adviser to the Comptroller for the Development and Welfare of the British West Indies; the Hon. W. B. Jackson, of British Guiana; Mr. Charles P. Taft, of the Social Security Board at Washington; Dr. Harry S. Mustard, Director of the DeLamar Institute of Public Health; and Dr. Ernest L. Stebbins, also of the DeLamar Institute. For the purpose of participating in the courses of instruction in public health, Dr. Haven Emerson, Director Emeritus of the DeLamar Institute of Columbia University, arrived in January of this year to teach classes in public health administration. Every one of these classes proved a source of stimulation to his pupils.

Mr. José L. Janer was transferred from the Department of Medical Zoölogy of the School to the Insular Health Department, in its Division of Biostatistics, and Dr. José Oliver González, member of the same department, will return in September to resume his post as parasitologist after a year at the University of Chicago where he completed work for his degree of Doctor of Philosophy. Dr. Rurico S. Díaz Rivera, resident physician of the University Hospital, was granted a fellowship by the Special Board of Trustees of the School for postgraduate studies at the University of Pennsylvania, where he will go at the beginning of the coming fiscal year.

Considering the present situation and the difficulties in shipments which affect receipt of periodicals, the library has continued to function as an im-

portant division of the School. It was especially gratifying to receive gifts from Medical Library Association exchanges; 441 complete volumes and 4,975 items have been received to date. The library is also indebted for generous gifts to Dr. George W. Bachman, Dr. P. Morales Otero, Dr. A. L. Carrión, Dr. R. Rodríguez Molina, Colonel A. T. Cooper, Dr. D. H. Cook, Dr. W. A. Hoffman, Dr. Conrado F. Asenjo, Dr. F. Hernández Morales, Dr. Myron E. Wegman, and Dr. Haven Emerson.

Prevalent conditions continued to affect the distribution of the *Journal*, which has become more and more a record of the work done in the School and Hospital; its excellent Spanish translations commend it increasingly to Latin America. A book review section will be a new feature of interest.

Investigations on *Brucella* continued during the year in the Department of Bacteriology under the direction of Professor Morales Otero. A publication on a *Brucella*-purified protein aroused considerable interest and brought forth various requests for supplies of this antigen. A detailed study of the probable antigenic relationships between proteus and *Brucella* groups of organisms was started.

A search for proteus strains of the X-type, especially of the X-19, is being conducted. The biological properties of local proteus strains from different sources are being carefully studied.

A survey of the proportion of positive Weil-Felix reactions in sera of hospitalized patients, other than clinical typhus, was initiated. Studies on sulfa-guanidine treatment of children suffering from *Shigella* infection, were continued, and further studies were undertaken to determine the growth of *Shigella* organisms in various types of native foods. Investigations are also under way to study the relation of flies in the transmission of dysentery. In this connection, it was accidentally found that ants may also be a factor in the transmission of this disease. All organisms so far isolated have been studied for cultural reactions and serological characteristics.

Dr. James Watt, of the National Institute of Health of the United States Public Health Service, continued his work on the evaluation of chemotherapeutic agents in the treatment and control of *Shigella* infection in man. A report of this work has already been submitted for publication. These studies were conducted with the coöperation of the Insular Health Department, the medical staff of the 10th Naval District, and the officers of the Puerto Rico Department Laboratory of the United States Army.

With Dr. Cecil A. Krakower, of the Department of Pathology, the experiments on the chemotherapeusis of experimental leprosy in rats were continued. The effects of thyroidectomy and thyroid feeding on experimental leprosy in rats are being observed at present. The study of the effects of estradiol propionate in female Rhesus monkeys, conducted under the supervision of Professor Earl T. Engle, of the Department of Anatomy of the

College of Physicians and Surgeons of Columbia University, is being continued.

A brief course in elementary medical bacteriology was given twice during the year to groups of nurses working for certificates in public health nursing. A course in medical bacteriology, consisting of one-hour lectures and two-and-a-half-hour laboratory periods daily, was also offered twice to sanitarians, medical technologists, and physicians from the Department of Health enrolled in the public health courses.

The Department of Bacteriology conducted for the University Hospital 1,200 bacteriological and serological examinations, and more than three thousand routine agglutination tests were made for the department of Agriculture.

Under the direction of Professor Donald H. Cook, head of the Department of Chemistry, the four-year study on the nutritive value of Puerto Rican forage crops in coöperation with the Agricultural Experimental Station was completed with the analysis of various grasses under different conditions of fertilizing.

Dr. Marianne Goettsch, formerly of the Department of Biochemistry of the College of Physicians and Surgeons of Columbia University, arrived in July to accept appointment in the Department. Dr. Goettsch has been active in nutritional work, conducting investigations on the vitamin E contents of various materials while studying the physiological effects of a low vitamin E diet on both rats and monkeys.

In coöperation with the Department of Agriculture and Commerce of Puerto Rico, Dr. Conrado F. Asenjo has been studying the composition and general characteristics of several native oils. Dr. Asenjo is also studying the distribution of papain during the development and growth of the papaya plant.

Professor Arturo L. Carrión has continued his study of the dermatomycoses in Puerto Rico. Observations on the morphology of the fungi in the chromoblastomycosis collection led to the discovery of a new variety of *Fonsecaea Pedrosoi*, namely, *Fonsecaea Pedrosoi Phialophorica*. A considerable amount of work was done in perfecting the technique for complement fixation tests and its application to fungus infections. The immunological studies on mycotic infections, initiated last year, were continued, though not on a large scale.

As part of the research under way, special emphasis was placed on sprue and its various aspects by Professor Ramón M. Suárez. Of interest to the staff is Professor Suárez's experimental study of the blood volume of normal Puerto Ricans. In addition, studies are being conducted on the incidence of rheumatic fever in Puerto Rico, coronary artery disease, and other senile degenerative changes of the cardiovascular system as observed in Puerto Rico; observations on Weil's disease; biochemical aspects of tropical lymphangitis and lympho-

granuloma venereum; clinical studies of enzymatic anthelmintics; a study of the therapeutic value of intraspinal injections with members of the vitamin B complex; a study of clinical and experimental Moniliasis, and one on bone marrow in tropical lymphangitis.

Concentrated effort was spent in the examination and study of the intestine of guinea pigs with relation to the effect of vitamin C deficiency on schistosomiasis infestation, under the direction of Professor William A. Hoffman, the head of the Department of Medical Zoölogy. In collaboration with Captain Gustave Dammin and Lieutenant Sidney Kaye, of the United States Army, a preliminary study was begun on the effects of oral phenothiazine in experimental schistosomiasis of rabbits. Also in collaboration with Dr. Harry D. Pratt, of the United States Public Health Service, anophelines were collected with the object of preparing a detailed guide to all stages of the three species known to occur in Puerto Rico. Miss Josefina Acosta has taken preliminary steps toward the investigation of trichinosis in vitamin E deficient rats.

Teaching activities for the year included courses in parasitology which dealt with the more important parasites of man and their transmitters occurring, or liable to occur, in Puerto Rico.

In the Department of Pathology, of which Professor Enrique Koppisch is in charge, research on synthetic estrogens, with Dr. Charis Gould, of the Presbyterian Hospital, on herpes virus, the virus of encephalomyelitis of mice and on toxoplasma in mice and guinea pigs was continued.

During the year, the Department trained Drs. Guillermo Carrera and Ildefonso Rivera Lugo, the former resident pathologist of the University Hospital. Dr. Rivera Lugo will occupy the post of pathologist in the Arecibo District Hospital on the completion of his training.

Professor John M. Henderson, as acting head of the Department of Public Health, directed courses for medical officers leading to the degree of Master of Science in public health; for public health nurses, leading to the certificate in public health nursing; and for college graduates, leading to the certificate in public health for sanitarians and to the certificate in medical technology.

On January 12, 1942, Commencement exercises were held for three groups of students who had completed the first courses of instruction in public health offered by the School. A total of thirty certificates was issued to public health nurses, sanitarians, and medical technicians. These graduates have all been assigned to positions with the Insular Health Department.

Although teaching was the main activity of the Department, members of the staff also devoted time to various projects of research interest. Professor Henderson, Assistant Professor of Sanitary Science, conducted a study of special problems concerning urban malaria, with particular reference to the irrigated south shore of Puerto Rico.

In coöperation with members of the Departments of Bacteriology and

Internal Medicine, Dr. Myron E. Wegman, Assistant Professor of Child Hygiene, studied the treatment of bacillary dysentery with sulfaguanidine and certain etiological and epidemiological factors in connection with infant diarrhea on the Island. Also, in coöperation with Dr. R. Fernández Marchante and Dr. Morton Kramer, of the Insular Health Department, an investigation on infant feeding with relation to infant mortality was undertaken in three municipalities of the Island.

Miss Johanna J. Schwarte, Assistant Professor of Public Health Nursing, investigated and reported upon the history of education in public health nursing in Puerto Rico. Dr. James A. Doull, Consultant in Epidemiology of the Department, conducted an extensive tuberculosis survey in the St. Just Rural Housing Project. The material is now in the process of analysis.

A special short course in water supply for engineers of the Insular Health Department was offered at the School in September, 1941. In addition to the formal courses for matriculated students, the nutritionist of the Department, Mrs. Rosa M. T. Rodríguez, conducted in-service training for the staff of the Insular Health Department. Also, the members of the Department of Public Health organized and participated in the courses in medical information and public health problems of Puerto Rico at the School of Social Work of the University of Puerto Rico.

The resignations of the Misses Schwartz, Kathleen Logan and Winifred Mendez and of Dr. Kramer, all members of the staff of the Department of Public Health of the School, were received with great regret. Professor Henderson, who served so well and so efficiently as acting head of the Department for the past year, has been transferred to the United States Public Health Service for malaria control work in cantonment areas.

In the Division of Biophysics and Radiation, Dr. Gleason W. Kenrick continued observations on ultraviolet solar radiation. Mr. R. G. Stone is working on the Fassig-Stone manuscript of *The Climate of Puerto Rico and the Virgin Islands* which is to be published under the auspices of the New York Academy of Sciences.

Lack of transportation and a continued rise in prices of foods and materials brought about by the war have severely handicapped the operation of the Santiago primate colony. Visiting scientists have been unable to undertake new research activities with relation to the colony.

The work on streptococci infections, started by Dr. A. Pomales Lebrón, of the Department of Bacteriology, was continued. Dr. James Watt made a survey of dysentery carriers among the colony, and Dr. Ramón M. Suárez studied the blood picture of normal monkeys. Dr. Michael I. Tomilin, who is in charge of the colony, continued the anthropological measurements and dental examinations of these animals.



During the year 450 Rhesus monkeys were captured for tuberculin testing. No positive reactors were found. One hundred and three young were born and survived during the year. Fifty animals of different ages were sold in the states, and seven were sent to the laboratories of the Department of Chemistry of the School. Mortality was reduced to one percent, caused in the majority of cases by injuries in fighting.

Respectfully submitted,

WILLARD C. RAPPEYE

*Dean*

*June 30, 1942*

PROFESSIONAL STAFF ON LEAVE FOR MILITARY SERVICE  
IN 1941-1942

*ADMINISTRATION*

Vernon W. Lippard

*ANATOMY*

Julius K. Littman

*BACTERIOLOGY*

Norman Molomut

*BIOCHEMISTRY*

None

*CANCER RESEARCH*

Milton J. Eisen

*DELAMAR INSTITUTE OF  
PUBLIC HEALTH*

Bernard M. Blum

Elias Strauss

Stafford M. Wheeler

*DERMATOLOGY*

J. Malcolm Bazemore

Robert R. M. McLaughlin

*MEDICINE*

George Baehr

Frederick R. Bailey

Otto S. Baum

Stuart S. Blauner

Daniel N. Brown

Norton S. Brown

Joseph B. Brune

George A. Carden, Jr.

Alvin F. Coburn

Henry P. Colmore

Crispin Cooke

John K. Curtis

C. Dary Dunham

Shirley C. Fisk

Charles A. Flood

Charles L. Gilbert

William H. Gillespie

Thomas J. Gleeson

J. A. Clinton Gray

Frederick K. Heath

John L. Kantor

Yale Kneeland, Jr.

James Liebmman

Putnam C. Lloyd

Thomas T. Mackie

Arthur M. Master

Joseph H. Minden

David D. Moore

Norman W. Osher

Allen A. Parry

Joseph Post

William D. Province

Charles A. Ragan, Jr.

John L. Riker

Theodore B. Russell

Paul B. Sheldon

William B. Sherman

Howard B. Shookhoff

DeWitt Hendee Smith

William H. Stearns

Theodore W. Steege

Alfred Steiner

Herman Tarnower

Joseph C. Turner

T. Lloyd Tyson

Chester H. Whitney

Herbert B. Wilcox, Jr.

Carl R. Wise

*NURSING*

Dorothy K. Hagner

Ella Kauffman

Jessie M. A. Mutch

Marjorie Peto

*NEUROLOGY*

Ben H. Balser  
 Norman Q. Brill  
 Fritz Cramer  
 Stanley M. Dillenberg  
 Henry H. Drewry  
 Desiderius Groszberg  
 Clarence C. Hare  
 Warren V. Huber  
 Walter O. Klingman  
 Harold Landow\*  
 Charles A. McKendree  
 John M. McKinney  
 Rollo J. Masselink  
 Albert A. Rosner  
 John E. Scarff  
 Carmine T. Vicale  
 Henry Wigderson  
 Herman Wortis\*

*OBSTETRICS AND  
GYNECOLOGY*

John H. Boyd  
 Charles Lee Buxton  
 Eugene S. Coler  
 John C. Kilroe  
 James R. Montgomery  
 Clinton P. O'Connell  
 William E. Pollard  
 John B. Rearden  
 Alvin J. B. Tillman  
 Leo Wilson

*OPHTHALMOLOGY*

C. Gregory Barer  
 Gordon M. Bruce  
 A. Gerard DeVoe  
 J. Vincent Flack  
 Edward Gallardo  
 William H. Hanna  
 John P. Macnie  
 Phillips Thygeson  
 Donald E. Tinkess

*OTOLARYNGOLOGY*

James W. Babcock  
 Daniel C. Baker, Jr.  
 Arthur J. Cracovaner  
 Sylvester Daly  
 Edmund P. Fowler, Jr.  
 Robert H. Fowler  
 Martin A. Furman  
 Fred J. Hunter, Jr.  
 Robert L. McCollom  
 Page Northington  
 George O'Kane  
 Lee R. Pierce

*PATHOLOGY*

Robert A. Kritzler  
 Hans Smetana

*PEDIATRICS*

Arthur F. Ackerman  
 George B. Bader  
 John M. Brush  
 Sidney S. Chipman  
 Harold W. K. Dargeon  
 John R. Gimour  
 David M. Greeley  
 Robert E. Jennings  
 Gilbert M. Jorgensen  
 Samuel Karelitz  
 S. Dow Mills  
 Ralph E. Moloshok  
 Daniel A. Wilcox  
 Charles L. Wood

*PHARMACOLOGY*

Solomon Disick  
 Alan Leslie  
 Clifford L. Spingarn

*PHYSIOLOGY*

Harold A. Abramson  
 Octa C. Leigh, Jr.

\* Deceased.

*PSYCHIATRY*

Walter Briehl  
George A. Jervis  
Kenneth Kelley  
John P. Lambert  
Lewis I. Sharp  
Stephen M. Smith  
Edward S. Tauber  
Giles W. Thomas

*RADIOLOGY*

Robert P. Ball  
Murray M. Friedman  
Arthur F. Hunter  
Lawson E. Miller, Jr.  
Gerald M. Peterson  
Eric J. Ryan  
Vincent M. Whelan

*SURGERY*

Frank B. Berry  
M. Renfrew Bradner  
Dwight B. Fishwick  
Edmund N. Goodman  
Robert S. Grinnell  
William G. Heeks  
Maurice J. Hickey  
Stephen S. Hudack  
Vincent M. Iovine  
J. Gordon Lee  
Albert H. Levy

Richmond L. Moore  
William Barclay Parsons  
Howard A. Patterson  
Louis M. Rousselot  
Rudolph N. Schullinger  
Lawrence W. Sloan  
Barbara B. Stimson  
Frank E. Stinchfield  
James E. Thompson  
Carnes Weeks  
Robert H. Wylie

*ORTHOPEDIC SURGERY*

McDowell Anderson  
Dana M. Street  
T. Campbell Thompson  
Melvin B. Watkins

*UROLOGY*

Bernard Blum  
Alex Gordon  
Charles T. Hazzard  
Alexander Preston  
John N. Robinson  
Elias Strauss  
Stafford Wheeler

*GOVERNMENT SERVICE*

Erwin Brand (Biochemistry)  
Kenneth Cole (Physiology)  
J. Gardner Hopkins (Dermatology)  
Kenneth B. Turner (Medicine)

# Columbia University

IN THE CITY OF NEW YORK

## Report of the Dean of the School of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1943



MEDICAL CENTER  
168TH STREET AND BROADWAY  
NEW YORK

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COLUMBIA UNIVERSITY PRESS

# SCHOOL OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1943

*To the President of the University*

SIR:

I have the honor to submit the annual report of the activities of the School of Medicine for the academic year 1942-43. Due to the accelerated program ninety-five students were awarded the degree of Doctor of Medicine on March 17, 1943, and students were admitted to a beginning class on March 22, 1943.

For the period March 22 to June 30, 1943, 464 students were enrolled in the regular course of instruction for the degree of Doctor of Medicine, distributed as follows:

First year . . . . .	119
Second year . . . . .	114
Third year . . . . .	122
Fourth year . . . . .	109

There were 1,555 applicants for admission. The students had prepared in 191 different colleges and universities. The class admitted during the year had prepared in forty colleges. The graduating class obtained internships in forty-one different hospitals in all sections of the country. Thirty-two students who were registered under the Graduate Faculties of the University took their work at the Medical School during the year. Instruction in the medical sciences was provided as usual for the students of the School of Dental and Oral Surgery. Twenty-five students were enrolled in the DeLamar Institute of Public Health. The enrollment in the Department of Nursing was as follows:

First year . . . . .	121
Second year . . . . .	99
Third year . . . . .	71

There were awarded, in addition to the degrees of Doctor of Medicine, eighteen of Master of Science (public health), thirty of Bachelor of Science (nursing), and eight of Doctor of Medical Science.

Dr. Cornelius J. Tyson, Jr., who was graduated in March, 1943, was the recipient of two prizes, the Dr. William Perry Watson Prize, awarded to the member of the graduating class showing the most efficient work in the study of the diseases of infants and children during the medical course, and the Janeway Prize awarded each year to the graduate who, in the opinion of the Faculty, has ranked highest in efficiency and ability. Mr. Leo Pomerantz, of the second year class, was awarded the Dr. Harold Lee Meierhof Prize for outstanding work in the field of pathology during the year.

Due to the accelerated program scholarship aid for the past year covered one and one-third academic years, and five classes were involved instead of the usual four. The average grant was larger, and a greater number of students were aided. One hundred and thirty-one students received an average of \$409 each for a total of \$53,592. We were fortunate in being able to make these awards at this time when students who under ordinary circumstances would work during their vacation periods were unable to do so.

The employment office of the School has aided 192 students to secure work throughout the school year. Two hundred and thirty-three steady positions and thirty-nine temporary jobs were filled this year. Students were employed in extracurricular work by sixteen hospitals not including the Medical Center.

Dr. John Baldwin has been in charge of the student Health Service. The over-all activity of the Service has not been greatly altered by the present emergency. Daily consultation hours were conducted by Dr. Baldwin throughout the academic year. Three hundred and nine medical students, approximately three quarters of the entire medical student body, applied at least once at the consultation hours. A total of 1,113 office visits was made by all students (aside from the routine physical examinations). This total comprises 884 office visits by 309 medical students and 229 office visits by 127 dental students. In addition to stated office hours, Dr. Baldwin was available every day for emergencies in the school and hospital buildings, at Bard Hall, or at the homes of students residing in the immediate neighborhood.

Major illnesses have not constituted much of a problem in the student body. There were no deaths and no active tuberculosis cases. There was



a striking rise in the incidence of primary, atypical pneumonia of undetermined etiology as compared with previous years, but not to any alarming level. Twenty-nine students were hospitalized and twenty-three were admitted to the overnight ward. Upper respiratory infections were common but not of epidemic proportions. The usual large number of acute sinusitis was treated in the Vanderbilt Clinic.

The incidence of pulmonary tuberculosis in the student body remains extremely low, only three cases having been uncovered in the past seven years and none in the past three years. This record indicates that the present precautions taken with regard to early detection of the disease are satisfactory.

During the past year, postgraduate courses were given to 977 physicians, including about 250 Army medical officers. The enrollment of civilian physicians was as follows:

Bellevue Hospital . . . . .	13
Montefiore Hospital . . . . .	21
Mount Sinai Hospital . . . . .	46
Neurological Institute and Medical School . . . . .	24
Presbyterian Hospital and Medical School . . . . .	64
DeLamar Institute of Public Health . . . . .	32
Margaret Hague Maternity Hospital . . . . .	3
New York Post-Graduate Medical School . . . . .	532

In addition to the postgraduate courses listed above, instruction for residents in affiliated hospitals was provided for:

Dissection of head and neck . . . . .	25
Histopathology of nose and throat . . . . .	12
Histopathology of ear . . . . .	17

Eleven candidates for the degree of Med.Sc.D., now in service, were continued in registration in the graduate program. Fourteen candidates are working for the degree at the present time.

The Post-Graduate Medical School offers a wide variety of short "refresher" courses of two distinct types—courses for general practitioners and advanced courses for qualified specialists. The largest number of courses for general practitioners are offered in the fields of internal medicine, gynecology, and pediatrics. An interesting development in this

category has been the interdepartmental courses in which several of the clinical departments coöperate in offering for general practitioners a course dealing particularly with diagnosis. When it was found that physicians remaining in civilian practice were too busy to come for courses of more than one week, the curriculum was revised to provide a larger number of one-week courses. The advisability of this change has been shown by the increased registration which is a marked contrast to the decrease in registration at the Post-Graduate during the First World War. It is also noteworthy that there are many general practitioners and internists throughout the country who come to the Post-Graduate year after year in order to keep pace with the rapid developments of medical science.

In recent years the Post-Graduate has increased the number of advanced courses offered only to those who have already qualified as specialists in various fields, particularly in the surgical specialties. Because admission to these courses has been restricted, the teaching has been at a pedagogical level adapted to specialists. Some of these are part-time courses, with sessions on one or two half days each week, for the convenience of specialists practicing in the metropolitan area. Others are full-time courses of one week or longer for specialists from distant cities.

The separation of courses designed for physicians already specialists from those arranged for general practitioners has proven the wisdom of adapting instruction to the needs of the different groups. Insistence upon qualifications for enrollment in the courses offered only to specialists has been a real contribution to postgraduate teaching. The recent development of symposia, given in intensive courses in a number of affiliated hospitals, for specialists already qualified in their field of practice has also proven of real merit. The growing demand for courses adapted especially to the needs of Latin American and South American physicians indicates a new and broad field of postgraduate teaching.

The programs of the Army Specialized Training Program and of the Navy College Training Program have been started in the School with every promise of success and advantage to trainees and to the University. All trainees are on commutation of quarters and rations. The amount and schedules of military exercises do not interfere with the academic program and clinical work. The splendid coöperation of the Army and

Navy officers in charge of the units at the School is greatly appreciated by the entire staff and student body.

The first year classes for January and October, 1944, have been filled for months. These classes, with the approval of the Army and Navy, have been selected from the large reservoir of college students created by the reduction of the usual premedical course to the shortened requirements of the services under their training programs which made senior, junior, and sophomore college students eligible. The future supply of medical students will be limited by the government contracts to trainees with shortened preparation. In the case of the Navy, its minimum requirement of five periods of sixteen weeks of accelerated instruction with certain possible additional college work should prove satisfactory.

The proposed program of the Army Specialized Training Division as it affects the college preparation of medical students may result in a lowering of the quality of medical care for the armed forces and the civilian population of the future. At present over 98 percent of medical students have had at least three years of college preparation, and a large majority have had four years. Modern medical training is based on this amount of previous education.

The Army proposes that immature college students be required to complete their basic college preparation in a condensed curriculum of fifteen months, preliminary to the long, arduous, and exacting discipline of three calendar years of accelerated medical instruction. Such a standard of premedical training barely meets the minimum requirements for medical licensure in many states. Lowering the premedical period of preparation will not, of course, increase the number of medical graduates per year because the professional schools are already operating at capacity production and full acceleration.

The Association of American Medical Colleges is of the unanimous opinion that the return to the standards of premedical education of a generation ago is against the best interest of the medical services of the Army. Sufficient numbers of students can be given a reasonable preparation to continue the production of competent physicians as a vital contribution to the war effort. The Association believes that the college period of preparation of recognized quality can be reduced from the present average of nearly thirty-six months of actual instruction to not

less than eighteen months of intensive and accelerated teaching. This minimum is regarded as the critical low limit of such preparation. Many believe that it is, in fact, too low.

If the Army insists, however, upon going below that minimum, the medical schools of the country will coöperate with the Army and will continue to train as many medical officers and doctors as rapidly as possible and as well as they can and at the full capacity of the medical schools. Educational authorities regret such a decision by the Army because there appears to be no compelling reason or necessity for such a step at the present time.

Medical education, along with every other phase of American life and education, has been adjusted to the all-out war effort. The endeavors to produce more well-trained physicians for the military and civilian needs of the country are meeting with a large measure of success to date. It is vital for the long-term needs of the country that in serving the immediate objectives of the war there shall not be serious impairment of the sound foundations of medical education built during the last twenty-five years, upon which the post-war adjustments will be based. The Faculty is studying the many new problems which will need to be faced when the primary war task is completed. It is important that we begin to make tentative plans for the new opportunities of national and even international service that will present themselves at the termination of the global conflict.

The plans must of necessity be determined finally by the conditions which will face the country, the world, the profession, and higher education at the end of the war. They will be determined in part by the length of the struggle and the extent to which our substance and resources have been mobilized and expended. That there will be a period of social and economic adjustment of the first magnitude seems certain. The reconversion and relocation of wartime industries with consequent effects upon employment, retraining, and shifts in population will create severe impacts upon our national economy. The financial burdens of the country and taxes upon individuals will probably force modifications in the previous methods of providing medical services for the population. The attitudes of returning physicians discharged from the services and of the men and women who have served in the armed forces must be con-

sidered. The necessary assumption of a considerable degree of responsibility in the fields of international health, relief, and rehabilitation will present many new challenges.

The present indications without consideration of possible political pressures are that the demobilization of the Army and Navy will be a far more orderly procedure than that which followed the last war. The Navy will probably remain at approximately full strength for many years following the close of hostilities if we are to discharge our world commitments in the era of peace and rehabilitation. The Army plans to retain a large force for similar reasons. If these events transpire we shall have no rapid mass demobilization with all the implications in employment, vocational training, and education but a period of time in which plans can be executed without undue haste. The post-war period will create many demands of a nonmilitary nature for trained experts in tropical medicine, public health, nutrition, sanitation, and the whole range of scientific endeavor as we contribute, as we shall very largely, to the world rehabilitation. The demands for such services and personnel promise to be large and insistent.

One of the first problems the medical schools will face after the war is the adjustment of our programs to a basis approximating a normal educational pattern. The accelerated training initiated by the medical schools even before our participation in the war was designed as an emergency measure to produce medical officers as rapidly as consistent with reasonable standards. Everyone realized the temporary nature of the plan and its inadequacies. Although we may retain the form of medical education, not all the substance can be preserved under war conditions. But the accelerated program is serving a highly important place in the all-out war effort.

The questions raised by at least a partial return to the earlier educational pattern can be answered only at the proper time. The deceleration and adjustment of the curriculum, for example, will be influenced by the date and year of cessation of hostilities in relation to our academic calendars. The "unwinding" will be as much a problem as the condensation was. For a period of several years the classes probably will be carried through irregularly until the war groups are graduated. If the Army and Navy programs are accompanied by a relaxation of academic standards

in premedical preparation and by a lowering of the level of professional education because of inadequate teaching staffs, the return to normal performance will be made more difficult. Returning staff members will have to be fitted back into their activities. Many students now financed by the government will have individual financial problems although present indications are that liberal assistance through severance allowances, government scholarships, and federal loans will be available for students where needed.

Probably there will be a considerable drop in premedical students for a time as schools reestablish as promptly as possible the standards of premedical preparation necessary for the modern study of medicine and for community, scientific, and professional leadership. Many students will have had irregular, inadequate, or interrupted preparation. The admission procedures will probably be rather flexible for a time.

The adjustments will afford an excellent opportunity to reexamine the curriculum and teaching procedures. Perhaps the most important objective to be sought is a close integration of the entire medical course into a single unit of education rather than a series of more or less isolated subjects. An opportunity will be afforded to reevaluate methods of instruction in which we endeavor to teach too many subjects in too great detail. It is an axiom that true education, particularly at the professional level, is self-education. Medicine must be learned by the student if he is to develop judgment, discrimination, and intellectual self-reliance.

Reorganizing our program of professional education will also afford an opportunity to give proper importance to subjects recently brought into prominence. It is apparent that more emphasis than heretofore should be placed upon parasitology, the medical and health problems of the tropics, psychosomatic medicine (which accounts to date for one third of our casualties), chemotherapy, the special diseases of adult and old age, biophysics, genetics, industrial medicine, public health, legal medicine, the care and treatment of trauma (especially burns, injuries, and shock), nutrition, the correction of physical defects, aviation physiology, and the broad range of environmental factors in health as well as in disease. It will not be possible nor desirable merely to add these topics to the old curriculum. The whole structure of medical instruction will have to be examined in the light of present-day requirements.

Many young medical officers will have had a hurried, somewhat abbreviated medical course in which the basic scientific preparation as well as clinical experience has been inadequate. The shortened internship and absence of residency responsibility and training for many future medical officers will bring large numbers of demobilized physicians back for graduate and postgraduate education. If, as expected, the medical schools will decelerate after the war and will have a reduced student enrollment for a few years, a great opportunity will be provided for the medical schools in coöperation with affiliated hospitals to assist returning physicians to make up for their deficiencies, not only in clinical fields through residencies and clinical instruction, but equally in the medical sciences. Fortunately for us, the comprehensive program of graduate and postgraduate medical education formulated ten years ago and which has operated with conspicuous success up to the time of hostilities is an admirable base on which to proceed to the new and even wider responsibilities in the immediate post-war era. It is in that same period of lowered enrollment of regular students that the staffs of the medical sciences may have opportunity to recapture their stride in research which has been seriously interrupted by the accelerated program and the withdrawal of younger members of the departments for military service. During the less strenuous period investigations in important clinical fields not related to the war effort should have every encouragement.

It seems reasonable to assume that the profound social and economic conditions that are likely to follow the war will necessitate significant changes in medical practice. The close relationships between income and sickness both as cause and effect, and between conditions of employment or housing and the community as well as individual health, as illustrations, suggest that the problems of medical care can not be divorced from those of unemployment, old age, income, living conditions, and other features of social security. The recent presentations in Great Britain of the Beveridge Report, the reports of the Medical Planning Commission of the British Medical Association and Medical Planning Research and in this country of the Murray-Wagner-Dingell bill in Congress and the numerous activities of the medical, hospital, and public health groups indicate the public interest as well as responsibility of the profession.

Illness occurs unevenly in the population and is unpredictable for the

individual or family. The economic burden, therefore, is also unpredictable for the individual. For large elements of society the problems can be met only through collective provisions for medical care which aim to distribute the costs over a large group of the population and over a long period of time. It is these considerations that have led to various forms of sickness or hospital insurance as well as the growing participation of governments during the last half century in health and medical services. There is need in most urban as well as rural communities for sound planning by competent lay and professional leaders to provide for the entire population adequate facilities and personnel for the modern practice of medicine. The unsatisfactory distribution and utilization of medical manpower even under the stress of the national emergency points to the need of better planning and wise professional leadership if medicine is fully to meet the task before it. The essential feature of a well-conceived program is the quality of the service rendered. A competent and effective scheme is dependent upon trained personnel who keep abreast of current knowledge and are competent in its application. Medical education is primarily concerned with the qualifications and preparation of students to practice medicine and to provide medical leadership. It is most important, therefore, that the professional education be permeated with an understanding of the basic social and economic problems and trends with which medicine is expected to deal, and which also are likely to modify the forms and opportunities of practice in the future.

It is quite evident that a series of challenging problems will meet the medical schools and universities upon completion of the present task which until successfully concluded should have our undivided attention and command our full energy. The post-war period promises to give unparalleled opportunities for public and even international service. It is fervently to be hoped in those interests that the standards of academic, scientific, and professional achievement may be retained and advanced.

The remaining members of the teaching staff are active in a variety of research projects associated with the war effort. The courses for medical officers assigned to the School from all over the country have proven most stimulating and successful. Many of the men are on national war committees. All are giving unstintingly of their time in the national emergency and are to be congratulated on their efforts in what often is of important help in the over-all war effort.



Appended to this report is a list by departments of members of the School staff who are in the armed services or engaged in special assignments outside the University. In every theatre of war and in many posts throughout the world our colleagues are making their contributions in the national crisis. In them and their efforts the entire staff and student body take great pride. They are carrying on the highest tradition of service which has been the heritage of this School in every emergency since and even before the birth of our nation. They have our complete support and best wishes.

Detailed reports of the teaching and research activities of the various departments follow.

## DEPARTMENT OF ANATOMY

Professor SAMUEL R. DETWILER, Executive Officer

Commendation is given to the members of the Department for their productive activities despite the heavy teaching loads placed upon them as a result of the accelerated teaching program and extra duties in connection with the courses for Army medical officers.

Between October, 1942, and May, 1943, anatomical instruction has been offered to 171 Army medical and dental officers. The added responsibilities in connection with the plastic and maxillofacial surgery course have been carried out by Professors Sherwood L. Washburn, Harry H. Shapiro, Raymond C. Truex, and William M. Rogers. The anatomical exercises for the courses in neurosurgery have been under the direction of Professor Adolph Elwyn who was assisted by Professors Detwiler, Truex, and Washburn and Dr. Herbert Elftman. The anatomical instruction for the courses in surgery of the extremities has been conducted by Professor William Darrach, with the assistance of Professor Rogers.

In connection with the graduate medicine program, approximately sixty residents from affiliated hospitals in New York City received instruction in this Department. The course on dissection of the head and neck, offered by Dr. DeGraaf Woodman, was again popular, with an attendance of twenty-four residents. Professor Shapiro has offered two courses in applied anatomy of the head and neck to graduates in dentistry and also a course in anatomy for graduates in orthodontia.

Because of the war, the Department has lost the services of nearly all the part-time instructors and has keenly felt also the resignation of Professor Ruth A. Miller, who rendered excellent services on a full-time basis for ten years. Dr. William B. Atkinson has been appointed Instructor in Anatomy, and

Dr. E. B. Kaplan of the Hospital of Joint Diseases has volunteered his services in the teaching of gross anatomy.

Professor Philip E. Smith has continued his investigations dealing with the maintenance and restoration of spermatogenesis in monkeys following hypophysectomy. Mr. Samuel Dvoskin, working under Professor Smith's direction, has been studying a similar problem in rats. Dr. Louis Levin's studies on the relation of the endocrines to serum protein metabolism have yielded interesting results.

Professor Earl T. Engle has been studying the effects of total and subtotal thyroidectomy in monkeys. The effects of ablation of the thyroid on creatine and cholesterol metabolism have been completed in collaboration with Professor Warren M. Sperry and Dr. Joseph Jailer. The relation of the thyroid to menstruation has been considerably clarified by these experiments. This is apparently the first experimental demonstration that the thyroid is necessary for menstruation.

Professor Engle, in collaboration with Dr. E. J. Farris and others of the Wistar Institute of Anatomy and Biology, has continued studies on malignant and nonmalignant tumors, and on changes in the genital system of aged rats. Dr. Theodora N. Salmon has continued her researches on the thyroparathyroid relations in the growth of rats.

Professor Aura E. Severinghaus was appointed Assistant Dean on July 1, 1942. He continues to give a large amount of time, as director of the American Bureau for Medical Aid to China, to medical war problems in the Far East. For his efforts in the reestablishment of medical libraries, and especially for a microfilm service, through which coöperation with certain of our government agencies is providing free China with complete files for current medical literature, the Chinese government, through its Ambassador, has conferred upon him the Peoples Medal of Honored Merit.

Professor Dudley J. Morton has continued his studies on static disorders of the foot and has given lectures to various medical organizations, to medical officers in Army camps, and at the Army Medical School in Washington. Conferences have been held on the subject of foot disorders at the Surgeon General's Office, the Walter Reed Hospital in Washington, and in Baltimore with Dr. George E. Bennett, chairman of the Advisory Committee on Orthopedic Surgery of the United States Army.

Professor Wilfred M. Copenhaver has continued his investigations on the function of the embryonic liver, with particular reference to blood formation. Professors Truex and Copenhaver are collaborating on a study of the comparative histology of the moderator band of the heart.

Professors Shapiro and Truex were awarded the 1943 prize in a nation-wide contest sponsored by the Chicago Dental Society. A second phase of their study is being carried on by Professor Shapiro in collaboration with Professors

Charles Bodecker and William Lefkowitz of the School of Dental and Oral Surgery. Professor Shapiro, with Dr. Bernice L. Maclean of Hunter College, is continuing his investigations on the transplantation of developing teeth in the cat. Studies dealing with the effects of tooth removal in the kitten upon the development of the skull are being carried out in collaboration with Professor Washburn. Professor Shapiro has completed a textbook, *Applied Anatomy of the Head and Neck*, which is scheduled for publication June, 1943.

Professor Washburn is making an exhaustive study of epiphyseal union in the opossum, and an analysis of trunk height in humans. Professor Washburn has collaborated with Professor Detwiler in studying the effects of the presence of large eyes upon the size of the orbit.

Professor Rogers has been making an anatomical and physiological study of motor end plates during Wallerian degeneration. In collaboration with Dr. Henry Juneman of the School of Dental and Oral Surgery he is continuing an experimental and clinical investigation of the changes in the form of the mandible and of the temporomandibular joint in response to changes in functional activity.

Dr. Elftman has been investigating the functional anatomy of the locomotor system. The barograph, which he perfected in its present form, has proven to be a valuable instrument not only for the rapid evaluation of the functional capacity of feet but also for research upon the dynamic factors present in both normal and abnormal feet. Dr. Elftman is also investigating certain problems in dynamic anatomy which promise interesting and valuable results.

Professor Raymund L. Zwemer has continued his work on the structure and function of the adrenal cortex. These studies have been aided by a grant from the Josiah Macy, Jr., Foundation. During a three-month interim in his teaching schedule, Dr. Zwemer at the request of the Uruguayan government was sent to South America by the Office of the Coordinator for Inter-American Affairs. In addition to teaching and research in Uruguay, he gave lectures in Argentina, Paraguay, and Brazil. These were published in the vernacular in the journals of the respective countries. Professor Zwemer was elected an honorary member of the Sociedad de Medicina de Montevideo, Uruguay; a corresponding member of the Sociedad de Biología de la Asociación Médica Argentina, and secretary of the Biological Section of the New York Academy of Sciences.

Special commendation is due Professor Elwyn for untiring efforts in his teaching. In connection with the neuroanatomy courses for medical and dental students and various graduate courses in neuroanatomy, he devoted 324 hours to actual teaching. He also completed in February the work on a neuro-anatomical text which has been published as *Human Neuroanatomy*. One of the special features of the book is the presentation of the internal structure of the nervous system from the standpoint of clinical significance.

Professor Detwiler has been studying problems of regeneration and cellular proliferation in the embryonic medulla and spinal cord of salamanders. He also completed a research monograph on the retina. The book entitled *Vertebrate Photoreceptors* was published by Macmillan Company in March. This monograph has been designed to meet the needs of those who have a general interest in the biology of the retina as well as of those who are specifically concerned with problems of retinal function.

## DEPARTMENT OF BACTERIOLOGY

Professor A. RAYMOND DOCHEZ, Executive Officer

The teaching of medical bacteriology and immunology has been adapted to the accelerated program for medical and dental students. With minor exceptions the character of the teaching has been the same as heretofore. In view of the probable changed content of the practice of graduates serving with the armed forces, additional time and emphasis has been given to the study of parasitology. A special course in medical bacteriology, immunology, and parasitology was conducted for a group of Army officers assigned to the School. The special lecture course on filterable viruses and the diseases caused by these agents was continued this year. The course in medical mycology, given jointly by the Departments of Bacteriology and Dermatology, under the direction of Professor Rhoda Benham, has been continued.

Dr. Jaques Bourdillon has resigned from the Department to accept a position in the Research Laboratories of the New York State Department of Health at Albany, N. Y.

During the year just ended the diagnostic service performed bacteriological and serological examinations on a total of 52,215 specimens. Due to changes in the arrangement of medical internships, occasioned by the war, it has not been possible to offer to interns the extensive experience in the diagnostic laboratory which was formerly considered desirable.

During the year there have been nine candidates for the degree of Doctor of Philosophy in the Department. Of these, two, Mrs. Julia Street Meyer and Miss Mathilde Solowey, have received the Ph.D. degree, and three, Mr. Fred Rights, Mr. Morris Solotorovsky, and Miss Margaret Bailly, have left to join the armed forces of the United States.

Research on rodent poliomyelitis was continued by Professor Claus W. Jungeblut and his associates. Investigations were continued on the interference phenomenon between a mouse-adapted-poliomyelitis virus (SK) and a monkey virus (Aycock). This work was carried out in collaboration with the Research Laboratories of the American Cyanamide Company at Stamford, Connecticut. A monkey and guinea pig pathogenic variant of Theiler's mouse

encephalomyelitis virus, obtained by serial passage through cotton rats, was established as a descendant from the parent strain on the basis of serological tests. In collaboration with Dr. Vourdillon a high degree of purification of SK murine virus was achieved by combining chemical and physical methods of extraction and concentration.

A localized outbreak of infantile paralysis in White Plains, N. Y., was investigated by Dr. Gilbert Dalldorf. A rodent pathogenic virus which paralyzes albino mice, cotton rats, and hamsters was isolated from the brain of a gray house mouse found dead in the house of a fatal human case of poliomyelitis. Another rodent pathogenic virus capable of paralyzing albino mice, cotton rats, and hamsters was isolated from the brain stem of this fatal case. The two viruses, when passaged in albino mice, had similar immunological properties; both were completely inactivated by antiserum against Theiler's mouse encephalomyelitis virus, and both showed some neutralization with convalescent sera obtained from surviving patients in this epidemic. They differed markedly, however, in virulence for albino mice in that the human virus was much more potent than the mouse virus.

Professor Beatrice C. Seegal, in association with Dr. Emily Loeb of the Department of Medicine, has continued the study of cytotoxic serums. At the request of the Subcommittee of Blood Substitutes of the National Research Council, Professor Seegal has carried out studies on the antigenic and anaphylactogenic nature of bovine serum fractions proposed as possible blood substitutes.

Continuing the work of Dr. Margaret Holden, and in coöperation with Professor Daniel E. Ziskin of the Dental Faculty, Dr. Ada R. Clark and Professor Theodor Rosebury have carried out a comparative study of acute herpetic gingivostomatitis and fusospirochetal infections of the mouth. Their studies indicate that herpetic gingivostomatitis and Vincent's infection appear to be distinct. Fusospirochetal infection, which is commonly present in mouth diseases other than Vincent's infection, may also complicate herpetic infection in man, but herpes virus is evidently not concerned in Vincent's infection.

Professor Rosebury has been conducting a study of the anaerobic actinomycetes. Previously available methods for isolation of these bacteria, particularly from grossly contaminated sources, have been much improved. In contrast to the reported experiences of others, it has been possible to isolate actinomycetes regularly and maintain them without difficulty in pure culture. Professor Rosebury's findings, although still incomplete, support the view, now held by most students of this subject, that actinomycosis in man is an endogenous infection. The pathogenesis of the disease in man, however, remains incompletely explained.

Professor Rosebury's film on spirochetes has been recommended by the Committee on Materials for Visual Instruction in Microbiology of the Society

of American Bacteriologists, and the Committee has completed arrangements to supply the film on a rental basis. Copies of the film are now available by purchase through Columbia University Press.

Professor James T. Culbertson's time has been largely occupied during the past year in expansion of the teaching schedule in parasitology for medical students and a special group of officers of the United States Army. His experimental work has been concerned with the preparation of a skin-testing antigen from pure suspensions of amoebae which appears to have use in the diagnosis of amoebiasis in man. Dr. Harry M. Rose and Professor Culbertson have worked with Dr. Arthur F. Coca, of the Lederle Laboratories, in the standardization and trial of a skin-testing antigen which Lederle Laboratories plan to offer commercially for the diagnosis of echinococcus disease. Working with Dr. A. E. Thomas of the Research Laboratory of the New York City Department of Health, they have used with considerable success two heterologous cestode antigens in the complement fixation test for echinococcus disease. Professor Culbertson and Dr. Rose have also developed a skin test for schistosomiasis. In skin tests for trichiniasis in apparently healthy persons Professor Culbertson and Dr. Rose have obtained an over-all incidence of 8.2 percent positive with *Trichinella spiralis* antigen.

During the past year, Professor Murray Sanders has continued the investigation of epidemic keratoconjunctivitis virus, and, as a result, certain salient features of the problem were clarified. It appears likely that the most important epidemiological factor in the spread of epidemic keratoconjunctivitis is contact infection. Consequently, it has been possible to reduce the incidence of the disease by proper education of physician and patient. This was accomplished through the combined efforts of the Division of Preventive Medicine, Office of the Surgeon General, United States Army, the Commission on Neurotropic Virus Diseases, Board for the Investigation and Control of Influenza and Other Epidemic Diseases in the Army, and the American Medical Association. In a study of more than 350 serums from various parts of the country, it was found that serum of patients convalescing from epidemic keratoconjunctivitis contained neutralizing antibodies to the virus isolated at this institution. This information made possible the preliminary use of convalescent serum in therapy. Early this year Professor Sanders was given a leave of absence to enter the Army where he is continuing his investigation of virus diseases.

During the past year Dr. M. Maxim Steinbach and Mr. Charles Duca have continued under a grant from the National Tuberculosis Association the study of experimental tuberculosis in depancreatized dogs. The investigation of experimental tuberculosis in hypophysectomized rats has been extended, and the results will soon be ready for publication. Material related to chemotherapy of tuberculosis has been collected and published. Substances under investigation are phenylthiourea and some of its derivatives, N<sup>7</sup>-benzoylsufanilamide and

penicillin. Material for a book on the "Etiology of the More Common Acute and Chronic Respiratory Infections" is being collected by Dr. Steinbach and Mr. Duca.

Dr. Henry Purdy Beale in collaboration with Dr. Mary Sojkin and Miss Agatha Guzzardi has used the quantitative precipitin reaction as a method of study of the basic principles of plant virus-antiserum reactions.

Dr. Charles L. Fox, Jr., has devoted the major portion of his time to the study of the action of soluble derivatives of the sulfonamide drugs on infection of wounds and burns. Studies of the clinical use of the preparations are now in progress at Bellevue Hospital with Dr. Fenwick Beekman and at Harlem Hospital with Dr. J. G. M. Bullova, Dr. R. Young, and Dr. J. A. Tamerin.

Dr. Fox and Mrs. M. R. Stetten of the Department of Biochemistry are studying a new diazotizable substance. This substance discovered to be formed during sulfonamide bacteriostasis has been isolated in pure form, and its chemistry and biological significance in sulfonamide bacteriostasis is being investigated. Studies on the prevention of renal precipitation of sulfathiazole, sulfadiazine, and their acetyl forms by keeping the urine alkaline have been continued with the assistance of Dr. Ole J. Jensen, Jr., of the Department of Urology and Dr. Gilbert H. Mudge of the Department of Medicine.

Dr. Clark has collaborated with Professor Rosebury in a comparative study of acute herpetic gingivostomatitis and fusospirochetal infections of the mouth. Dr. Holden is initiating a study of the so-called "interference phenomenon" as manifested by viruses of the filterable type.

Graduate studies have continued during the year in spite of increased demands for space and time because of the enlargement of the teaching program occasioned by the war. Mr. Duca has investigated the relationship of the age of guinea pigs to resistance to experimental tuberculosis. Mrs. Dorothy Naiman is studying the effect of the X ray on the resistance of rats with *Trypanosoma lewisi*. Miss Eleanora Molloy is coöperating with Dr. Rose in a study of the etiology of primary atypical pneumonia. Mr. Walter Kessler has completed an investigation of *Bartonella muris* anemia in the albino rat.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

No major changes in personnel have occurred during the period covered by this report. Instruction has remained essentially unaltered by the changes in the accelerated schedule. As to graduate instruction, the enrollment in the introductory course fell to half the number for 1941-42, and losses, largely due to war conditions, have occurred in the advanced group of students. The Department undertook the instruction of seventeen Army officers in the methods of diagnostic chemical analysis.

Although the teaching duties have been unusually heavy, the Department has continued to be active in research, some of which has been dedicated to war problems. To one project Professor Erwin Brand and his assistants have devoted full time, and another study is under the leadership of Professor Erwin Chargaff. This investigator has also continued his studies on the coagulation of blood, the lipoprotein complexes of tissue cells, and the deamination of hydroxyamino acids. Professor Hans T. Clarke has investigated the possible usefulness of some new synthetic products in relation to preoperative sterilization, certain surgical procedures, and as substitutes for plasma proteins in military medicine.

Professor Edgar G. Miller, in collaboration with Dr. Victor Ross, has pursued his studies of the metabolism of spermatozoa and the chemistry of seminal plasma. Professor Goodwin L. Foster has further developed his novel and promising method for the analysis of amino acids of proteins by the isotope dilution method. Professor David Rittenberg, with his associate, Dr. Konrad Bloch, has extended his study of the biological synthesis of cholesterol from acetic acid. With Dr. David Shemin he has continued his investigation, with the aid of the stable isotope of nitrogen, of protein in normal tissues and tumors. Work on the carbohydrate metabolism of tumors has been investigated, in collaboration with Professor Woglom of the Department of Cancer Research, by Dr. Gwei-Djen Lu, a visiting scholar from China. Dr. DeWitt Stetten has continued his studies of lipin metabolism with the aid of deuterium. Among other interesting findings he has demonstrated the conversion by rats of a paraffin hydrocarbon into fatty acid.

Professor Maxwell Karshan, with two teaching assistants, has again taken sole charge of the instruction of biochemistry to students of dentistry, eight of whom carried out under his direction research work in preparation of their theses. He has continued his investigations of the etiology of periodontoclasia and of the use of fluoride in caries prophylaxis in collaboration with other members of the Faculty of the School of Dental and Oral Surgery.

The Department has again provided facilities for and supervised a considerable part of the diagnostic chemical analyses for the Presbyterian Hospital and clinics.

## DEPARTMENT OF CANCER RESEARCH

Professor WILLIAM H. WOGLOM, Acting Executive Officer

Dr. Milton J. Eisen has been granted leave of absence to enter the Army, and Mr. Frank M. Exner resigned to engage in a defense project. Professor Charles Packard resigned during the year in order that he might devote his entire time to the directorship of the Marine Biological Laboratory at Woods Hole.



As partial compensation for the loss of these three valuable men Dr. Gray H. Twombly was appointed Assistant Professor of Cancer Research.

Continuing their investigation of biotin, Professor Woglom and Dr. Philip M. West have fully confirmed their statement in last year's report that the cancer cell, unlike other cells, can grow vigorously in the absence of biotin. A third transplanted tumor has shown this capacity, and methylcholanthrene sarcomas and a few spontaneous carcinomas of the mouse mamma have arisen in mice that had been brought almost to cessation of life by biotin deficiency. Not only have these results of experiments on animals been confirmed in other laboratories, but a recent report from one of the large New York hospitals suggests that they are valid for the human subject also.

Considerable excitement was aroused during the year by the statement that cell-free fluids from eggs in which mouse or rat tumors had been grown would give rise to these tumors when injected into mice or rats. As this suggested the presence of an extracellular agent, perhaps a virus, and as no such principle has yet been recovered from a malignant mammalian tumor in spite of some thirty years' continued effort throughout the world, the report could not by any possibility be neglected. Dr. Alfred Taylor from the Biochemistry Institute of the University of Texas, senior author of the article in question, was so kind as to spend a day in the Department demonstrating his technic, and Professor Twombly thereupon inaugurated an attempt to confirm the findings. So far, however, this has been unsuccessful.

Professor Twombly is engaged, also, in working out a technic that will lower the high death rate of parabiotic animals, with the ultimate end in view of upsetting the hormonal balance in tumor-bearing mice by parabiotic union with suitable partners and thus, perhaps, affecting the growth of their tumors.

Dr. Jacob Heiman, continuing his hormonal studies, has found evidence to suggest that certain hormones may lower the cancer incidence in mice that are predisposed to the disease.

The experiments upon which Dr. Eisen was engaged are being continued during his absence. These include efforts to induce tumors in the liver by damaging it with carbon tetrachloride, as one means of testing the widely prevalent view that carcinogenic agents act, not by direct stimulation, but by first causing necrosis. Other methods are being employed concomitantly in an attempt to discover why this organ should be so vulnerable to some carcinogenic agents and so resistant to others.

Professor Edward L. Howes, of the Department of Surgery, is working as a guest of the Department on the early stages of carcinogenesis, comparing lesions of various sorts in the hope of finding some distinguishing characteristic in those that are destined to become cancerous. Another guest, Dr. Gwei-Djen Lu, a visiting scholar in the Department of Biochemistry, has been

studying deviations in the carbohydrate metabolism of tumor-bearing animals by methods that have only recently become available.

Professor Woglom continues as a member of the Scientific Advisory Committee of the International Cancer Research Foundation, is acting as consultant for an index of the bibliography on cancer research that the Foundation is preparing to publish, and edits *Cancer Research*.

The following firms have continued generously to supply pharmaceutical products for experimental purposes: Roche Organon, Incorporated (through Dr. R. J. Floody), Shering Corporation (through Dr. Erwin Schwenk and Dr. Max Gilbert), and Vico Products Company (through Mr. H. N. Fizdale).

## DELAMAR INSTITUTE OF PUBLIC HEALTH

Professor HARRY S. MUSTARD, Executive Officer

Despite the fact that under war conditions few professional men and women are free to undertake graduate studies in public health, the number of graduate students in the Institute in 1942-43 was higher than normal. Two of them were regular officers of the United States Public Health Service, two were sent here under the auspices of the New York State Department of Health, thirteen were members of the city Department of Health staff, one was on a Rosenwald Fund scholarship, and two were on Kellogg scholarships. The remaining five were unaffiliated at the time of their registration.

In addition to its regular courses for graduate students engaged in full academic year of study in public health, the Institute in 1942-43 conducted two classes for medical officers at the request of the United States Navy. These courses were devoted to intensive work in industrial hygiene. Each was of twelve weeks' duration. As a further service to the Navy Medical Corps, the Institute during this year made laboratory space available to the Navy medical officer in charge of industrial hygiene and sanitation at the Brooklyn Navy Yard.

There have been a number of changes in the staff and Faculty of the Institute in the past year. Professor Earle B. Phelps retired as Professor of Sanitary Science as of June 30, 1943, with the title of Professor Emeritus. Dr. Ernest L. Stebbins, Professor of Epidemiology, was granted leave of absence on July 15 in order that he might serve temporarily as Commissioner of Health of New York City. Dr. Stafford Wheeler, Associate Professor of Epidemiology, was granted leave effective July 1, 1942, to continue duties as an officer of the Navy Medical Corps. Dr. Elias Strauss was given leave on August 20, 1942, so that he could serve as a consultant to the Secretary of War on the Committee on Respiratory Diseases, Board for Study of Epidemic Diseases, United States Army. Mr. Alvin Miller, Research Assistant in Epi-

demology, resigned September 1, 1942, to enter the Sanitary Corps, United States Army. Dr. Bernard Blum, Instructor in Public Health Practice, resigned September 15, 1942, to enter the Army Medical Corps. Mr. Morris Solotovsky, Instructor in Epidemiology, resigned February 28, 1943, to enter the Sanitary Corps, United States Army. Dr. Harry Most, Lecturer in Tropical Medicine, requested leave of absence as of June 30, 1943, in order to enter the Army Medical Corps.

As a result of staff depletion on the one hand and unusual demands on the other, a number of adjustments have been necessary in the teaching and research program. Temporary and part-time employes have been utilized, and research work not related to the war effort has had to be curtailed or discontinued. Professor Haven Emerson, though occupying an emeritus status, has been most cooperative in helping to meet the problems created and has conducted a class in public health administration. Members of the Faculty in other departments of the Medical School have generously given assistance to the Institute.

The responsibilities of the division of biostatistics during the past year were greatly increased. The rudiments of biostatistics were taught to the medical students for the first time. Short courses in biostatistics were given to the two groups of naval officers assigned to the graduate training in industrial hygiene at the Institute. Several new courses in biostatistics have been initiated. Professor John W. Fertig was frequently called into consultation by various departments of the Medical School and the School of Dental and Oral Surgery in connection with research projects. He is on statistical committees of the New York City Department of Health and the National Research Council.

Professor Frederick B. Flinn has had charge of two classes in industrial health for naval medical officers. In addition to regular instruction of graduate students, he has assisted in two courses in industrial health at the New York Post-Graduate Medical School. His research work on the breakdown products of aniline and allied products in the body has been completed and is being written up for publication.

Professor Flinn and his assistants have been studying the toxic effects of chlorinated naphthalenes and have found a substitute that can replace them in impregnating wire for use for the armed forces. They have also been studying the systemic action of vinyl carbazol and the possibility of its causing cancer, which is of importance in connection with war industry. The radium work is progressing but will not be completed for several years. Studies have been conducted on the hazards of certain allyl compounds which have been the cause of death of at least one person.

During 1942-43 the division of public health dentistry was established. Lectures and seminars were offered to acquaint graduate students with problems of dental diseases as they affect the public health, and students holding

the degree of Doctor of Dental Surgery were given special courses in the public health aspects of dentistry. Through an arrangement with the New Jersey State Department of Health, these students were given practical problems in the initiation and administration of dental programs within that state. The naval medical officers who attended the courses in industrial hygiene were given instruction in the dental phases of industrial medicine.

Professor Moses L. Isaacs, who had charge of all laboratory teaching in the courses known as public health laboratory, resigned as of July 1, 1942, to take up his duties as Dean of Yeshiva College. Laboratory work previously given in this division was transferred to a joint course in laboratory methods for which epidemiology and sanitary science are jointly responsible. Mr. Solotovsky assisted in that part of the laboratory instruction given under sanitary science.

Professor Phelps, by reason of special war restrictions, had to eliminate most of the field trips from his regular course in public health engineering. He assisted Professor Flinn in the special courses of instruction in industrial hygiene given to medical officers of the United States Navy. A special course of instruction for milk plant operators was arranged at the joint suggestion of the milk industry and of the New York City Department of Health. This course was attended by thirty students, all of whom were actually engaged in milk plant operation in New York City or immediate environs and were sent by their respective companies. Valuable assistance was had in the presentation of the practical aspects of milk plant operation from representatives of the state and city departments of health and from various outside authorities.

## DEPARTMENT OF DERMATOLOGY

Professor A. BENSON CANNON, Acting Executive Officer

The Department during the past year has made certain changes in the teaching program and in the clinic designed to better the instruction. The doctors assigned to the supervision of the groups of fourth year students are making every effort to have each student not only observe but actually take part in, as far as possible, the routine handling of the patients in each division of the clinic. This involves the working up of new cases in the diagnostic rooms, the treatment of syphilis, the work in the mycology department with actual study of slides and identification of fungi, the technic in taking biopsies, and an opportunity to observe procedures in X-ray and radium treatment. There was practically complete agreement among the students that the presentation of cases of typical dermatoses with an opportunity for observation of the case and questions in regard to it would be far more helpful to them than the formal lectures.

During the spring assistance was given to the city Department of Public

Health in the problem of the ringworm epidemic which was involving the schools of Queens and New York City.

Special instruction has been arranged for the younger doctors in the Department. Professor Benham gave a course in medical mycology, and Professor George C. Andrews has conducted several sessions on the theory and technic of X ray. Dr. Gerald F. Machacek held a class in pathology.

Study on the treatment of early syphilis has been completed on 250 patients on the four-bed experimental ward. The results have been most gratifying and promising with a high percentage of cures. In the clinic experimental work has gone forward with intramuscular and subcutaneous intensive arsenotherapy. The most satisfactory preparation to date has been pyridine arsenoxide.

Dr. Jerome K. Fisher was appointed an assistant dermatologist in the Presbyterian Hospital and made responsible for collecting cases and, under the direction of the attendings on the service, for supervising treatment. Rounds were instituted and the students were taken to the bedside of each patient for demonstration. This material proved most interesting and valuable for teaching, not only for the instruction of the third and fourth year men, but also for weekly staff conferences.

Dr. Eugenia H. Maechling has been carrying out arsenic determinations on all the patients on the experimental ward. Professor Paul Gross has been continuing his active research program concerned with metal poisoning in the rat and its relation to nutrition, under a grant from the John and Mary R. Markle Foundation. Professor Gross and Professor Beatrice Kesten have made a special study of psoriasis, the results of which were published in the *Archives of Dermatology and Syphilology* for February, 1943. Dr. James L. Miller continued his studies on the use of local applications of sulfonamides in skin infections.

Professor J. Gardner Hopkins, Executive Officer of the Department on leave during the year 1942-43, was actively engaged in research on dermatophytosis under a grant from the government. Drs. Robert R. M. McLaughlin and James M. Bazemore are with the armed forces.

Miss Miriam Covalla, an instructor from the Zoölogy Department of Barnard College, has been appointed to combine the duties of laboratory assistant and microphotographer. Moving pictures of all important technics will be made and kept as a permanent record in the Department to be used for teaching purposes.

## DEPARTMENT OF MEDICINE

Professor WALTER W. PALMER, Executive Officer

Anticipated changes in teaching, research, and clinical activities and the influence which is exerted by the reduced time for internships required by the Army and Navy made necessary by the war have resulted in a nearly con-

tinuous teaching schedule. The reduced teaching staff necessitates less supervision of the student's work with the result that the quality of instruction has suffered, particularly in the third year. The work of the fourth year has not fared as badly as has the third. No change has been necessary in the time devoted to medicine.

For Bellevue Hospital Professor I. Ogden Woodruff reports a much reduced staff, and continuous duty for senior attendings. Professor J. Burns Amberson, Jr., reports 3,160 patients admitted to the Tuberculosis Service during 1942 as compared with 3,274 in 1941. Seventy-seven of his beds have been set aside for "catastrophe" purposes, reducing the capacity of his service to 307. About 18 percent of the patients admitted to the Chest Service are nontuberculous. The autopsy record of 45.9 percent of deaths gives some indications of how valuable this division is for teaching. The course for the fourth year students has not changed materially.

All students of the second year class received training in physical diagnosis under Professor Franklin M. Hanger, Jr. Various members of the Department have assisted in this instruction. The Department participated in the instruction of two groups of medical officers of the Army in thoracic surgery and related medical subjects. A course of two weeks' duration was given in October, 1942, in coöperation with the Trudeau School of Tuberculosis. The Commonwealth Fund has sent three postgraduate students for special instruction. They have been assigned to the Resident Staff for periods varying from four to eighteen months. The Institute of International Education has sent one student from Peru for a year's training. This year, according to custom, members of our staff have given the lectures on chronic pulmonary diseases for the third year class of New York University. Those students are given instruction on the Chest Service of the First Division at Bellevue Hospital.

Twenty-four students have taken elective work as clinical clerks at the Goldwater Memorial Hospital, participating in most of the activities of the research and clinical services in this hospital for chronic diseases. It is the feeling of the staff that our students have learned to appreciate the challenge presented by the patient with chronic illness.

Dr. Karl Meyer of the University of California lectured on Plague to the third and fourth year students on December 7. Dr. Arne Barkhuus of the Milbank Memorial Fund lectured on the problems facing a young medical officer in charge of a unit in the tropics to the third and fourth year students on January 16.

Under the direction of Professor A. Raymond Dochez, Dr. Harry M. Rose in collaboration with Miss Eleanora Molloy has made certain observations on atypical pneumonia. In addition to this work and in collaboration with Professor James T. Culbertson, a diagnostic skin test in schistosomiasis was de-

scribed. Also in association with Professor Culbertson a preliminary study on the incidence of trichinosis in apparently normal individuals was carried out. An investigation of the reported presence of Forssman antigen in *Trichinella spiralis* was completed. Dr. Chen-Hsiang Huang has found that with equine encephalitis virus accurate titrations may be made by using small bits of tissue in serum.

In the Edward Daniels Faulkner Arthritis Clinic Professors Ralph H. Boots, Martin H. Dawson, Henry T. Chickering, and Alexander B. Gutman with the assistance of Dr. Gladys Hobby, Mrs. Miriam Lipman, and Mrs. Arlene DeLamater have continued studies on the effects of gold salts in rheumatoid arthritis and the use of hyaluronic acid. In collaboration with Professor Karl Meyer, Associate Professor of Biochemistry, the new potent antibacterial substance, penicillin, has been investigated both clinically and therapeutically. Stable compounds have been made and found active in man. The mechanism of action of the product has been studied. Under the direction of the National Research Council sixty-five cases of various types of severe infection have been treated with most successful results.

Professor David Seegal, Director of the First Division, Goldwater Memorial Hospital, Dr. Arthur J. Patek, Dr. Walter L. Bloom, Dr. Alice Lowell, and Dr. Oscar D. Ratnoff have continued their studies on cirrhosis of the liver and nephritis. Dr. Emily N. Loeb in collaboration with Professors Seegal and Lyttle has continued her studies on the role of infection in glomerulonephritis. Dr. Beatrice Seegal, Assistant Professor of Bacteriology, and Dr. Loeb have undertaken to determine the possible relationship between placental extract and toxemia of pregnancy.

Under the direction of Professor Robert L. Levy the division of cardiology has carried on six major studies as follows: cardiac hypertrophy and degeneration of undetermined etiology with Professor William C. Von Glahn; a statistical study of the effects of aminophyllin in patients with coronary insufficiency with Drs. Henry A. Carr and John R. Fertig; with Dr. Frederick H. Shillito a study of the anoxemia test in Pan American pilots (the results have been correlated with the clinical examinations and flight records); the rate of healing of myocardial infarcts with Dr. John M. Baldwin, Jr.; a study of blood pressure in army officers with Professor Paul D. White and Professor William D. Stroud; and the reëxamination of 1,000 men rejected for military service in New York City because of cardiovascular defects. The last project is under the joint auspices of the National Research Council and the selective service system. A report has been completed and will be combined with results obtained in Boston, Philadelphia, Chicago, and San Francisco, where similar studies have been made.

In addition to the extensive physiological observation on individuals in high altitudes Professor Alvin L. Barach has continued the successful treatment

of advanced pulmonary tuberculosis by immobilizing the lungs in the equalizing pressure chamber. Cavities and tuberculosis infiltration show marked improvement within four months. Also he has completed a study on repeated bronchial relaxation in the treatment of intractable asthma in which it was shown that the majority of patients with severe asthma are relieved and develop a remission of their symptoms as a result of combined helium-oxygen and aminophyllin therapy.

The work of Professor Dickinson W. Richards may be summarized as follows: on the Tuberculosis Service at Bellevue Hospital, the investigation of pulmonary physiology has continued under a grant from the Commonwealth Fund. Professor André F. Cournand is in immediate charge with Drs. Richard L. Riley, Ernest S. Breed, Robert P. Noble, and Henry D. Lauson participating. Additional studies of pulmonary and circulatory function in various forms of pulmonary disease have been made, and material is now being collected for a general review of this subject. A major part of his work at Bellevue Hospital has been devoted to a study of the circulation in traumatic shock in accident cases admitted to the Emergency Ward of the hospital. The Department of Physiology of New York University has collaborated in this research with our Departments of Medicine and Physiology. At the Presbyterian Hospital, studies of pulmonary and circulatory function have continued with the emphasis on cases of cardiac disease. This work has been under the immediate direction of Dr. Eleanor Baldwin, with the assistance of Dr. Fred M. Davenport, Dr. Gifford B. Pinchot, and Dr. David T. Dresdale. Dr. Baldwin is making an analysis of forms of pulmonary insufficiency. In addition, several cases of severe burn with shock have been studied as a part of the shock project mentioned above. This has been carried out in collaboration with Professor Frank L. Meleney and Dr. John Scudder of the Department of Surgery. At the Goldwater Memorial Hospital Dr. Herbert C. Maier and Dr. Lowell have been conducting experiments in animals on shock produced by hemorrhage, and the effects of certain blood substitutes upon this condition.

Professor Alexander B. Gutman with Mrs. Gutman and Dr. Thomas J. Sullivan of the Department of Neurology continued studies of serum "acid" phosphatase in patients with metastasizing prostatic carcinoma with special reference to the effects of castration. With Dr. Bradley Scheer, he carried on experimental and clinical studies on the effect of uricase on the uric acid metabolism of gout. With Dr. Dan Moore and Dr. Elvin Kabat he continued studies on Bence Jones proteins in multiple myeloma.

Professor Michael Heidelberger, with the aid of Mrs. Catherine F. C. MacPherson and Dr. Samuel Kaiser, has developed a method for the colorimetric microestimation of the small amounts of antibody found in human sera after vaccination or infection. This method was used in a continuation of the study of the immune response of pneumonia patients following treatment with sulfadiazine or penicillin. Mrs. MacPherson, as a Commonwealth Fellow, has



isolated the immunologically specific polysaccharides of several additional types of influenza bacilli. Miss Graciela Leyton-Ramirez, of the Departments of Bacteriology and Biochemistry, University of Santiago, Chile, is studying pneumococcus "R" agglutination and pneumococcus cellular proteins under a fellowship of Barnard College. The laboratory is now actively engaged on four war problems for the United States government. The work on immunization against pneumococcus pneumonia has progressed to the completion of recommendations and to a readiness to move into the field in the event of an outbreak of pneumococcus pneumonia among the armed forces. Progress is being made on a second project involving the study of the antigens of human malarial parasites and the possibility of immunization against the disease.

Dr. David E. Green's laboratory has been active with fruitful results. In the study on enzymes of animal tissues, Miss Violet Nocito, Dr. Sarah Ratner, and Dr. Green have established that glyoxylic acid is a physiological metabolite. Mr. Paul K. Stumpf studying enzymes of bacteria in collaboration with Professor Dan Moore has constructed an ultrasonic quartz oscillator designed specifically for the disintegration of bacteria. The apparatus can generate ultrasonic vibrations of four different frequencies: 200, 400, 600, and 800 k.c. The application of ultrasonics to the disintegrating of the bacterial cell is now being studied systematically. In chemotherapy Dr. Ratner, Professor Alvin F. Coburn, and Dr. Green have isolated from dried bakers-yeast a bound form of p-aminobenzoic acid. Recently one of the most potent antibacterial agents isolated from molds, the so-called notatin or penicillin B, has been found to be identical with a flavoprotein which oxidizes glucose to gluconic acid. Mrs. Ruth P. Callendar and Dr. Green have shown that a flavoprotein from other sources may have antibacterial action.

The Constitution Clinic under Professor George Draper has continued with routine studies of various disease types. For the past year by far the major part of the constitution work has been focused upon the problem of identifying pilots who were biologically incapable of flying high-powered combat planes. This work, which was undertaken at the request of the Navy Department, has been slow in developing due to the difficulty of getting reports on pilots who are scattered all over the world. However, recently many of these reports have come in but the results are confidential. The other main activity of the Constitution Clinic has been in the field of microconstitution. This investigation has been in the hands of Dr. Helen Ramsey. It is quite apparent now that there is as much difference between the pattern of the tissue cultures from the blood of individuals suffering from different diseases as there is between the total personalities of these individuals. Dr. John L. Caughey, Jr., has found a practical and useful method of analyzing breathing patterns of human subjects.

Dr. Franklin A. Stevens's study of the effect of histamine in allergic states

was practically terminated this year. It is found that the cutaneous test with histamine is of no value in determining an allergic state. It appears that if patients with asthma and carcinoma of the breast, thyroid, or vertebrae, are given massive X-ray therapy the asthma is vastly improved. This mode of therapy is under investigation.

Dr. Sidney C. Werner has discovered through the examination of X-ray studies of the gastrointestinal tract in individuals with anorexia nervosa that a high incidence of duodenal stasis occurs. Dr. Werner on a contract for the Office of Scientific Research and Development is making observation on the 17-ketosteroid excretions in patients with severe burns.

It is with regret that we report the death of Professor H. Rawle Geyelin on September 7, 1943.

## DEPARTMENT OF NEUROLOGY

Professor TRACY J. PUTNAM, Executive Officer

The activities of the Department during the past year have been greatly modified by the war. The absence of a large proportion of the staff has thrown an added burden of teaching on the remaining, and the productivity of the Department has been correspondingly cut down. The course in neurological examination formerly given by Professor Walter O. Klingman has been transformed into a course in pathologic physiology of the nervous system, in charge of Professor Frederick A. Mettler. Comprehensive examinations have been introduced in the second and fourth years. A series of intensive courses in neurosurgery is being given for the Medical Corps of the Army.

Professor Henry A. Riley's *Atlas of the Basal Ganglia, Brain Stem and Spinal Cord* has been published. Professor Putnam has published a small manual entitled *Convulsive Seizures* for the use of patients. Professor Paul F. A. Hoefer has collected material on the electroencephalogram in cases of head injury. Professor Mettler has continued his work in the field of cortical and subcortical extirpations. Dr. Heinrich Waelsch and Dr. Jerry C. Price have introduced a new acidifying agent, racemic glutamic acid, as an adjuvant in the control of petit mal and psychomotor seizures. Dr. Hans Hoff, formerly of the University of Vienna and on leave from the University of Bagdad, has worked in the Department with Dr. Hyman Weitzen and Professor Putnam on the use of dicoumarol in the treatment of multiple sclerosis.

A most interesting group of investigations has been initiated by Dr. David Nachmansohn, who comes to us as a Research Associate from Yale University, sponsored by the Josiah Macy, Jr., and the Dazian Foundations. He has developed a most delicate and reliable technique for studying the metabolism of cholinesterase and other chemical intermediates in the electric organ of the eel, a field of work which promises to have many important practical applications.

The amount of routine investigative work carried on in the Department has been almost wholly eclipsed by several projects in the field of military medicine, carried on under contract with the Office of Scientific Research and Development and some foundations. There have been six of these in all, but they are confidential.

## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

Chief among the events of significance for nursing during the year was the resignation of Miss Helen Young as Director of Nurses on November 1, 1942. Miss Young's wise and able leadership during her twenty-one years in charge of the nursing activities has been the major factor in the achievements of this Department. The preparation of the School of Nursing for recognition by Columbia University was her work, and its progress in the new relationship was a cause of real satisfaction. The union of the educational and administrative functions in one person, brought about by the appointment of Professor Conrad as Director of Nursing, is following a pattern uniform with that of other Departments in the Medical School and the Hospital.

The School of Nursing has shown a very satisfactory growth during the year. Registration figures of the 291 students in the Spring Term were as follows:

	<i>Total</i>	<i>Degree</i>	<i>Diploma</i>
Third Year . . . . .	71	30	41
Second Year . . . . .	99	62	37
First Year . . . . .	121	83	38

Comparison with the previous year shows an increase of 36 students.

Every effort is being made to complete the clinical services required for the three years by the State Education Department within 30 months, thus helping the students to devote the last six months to electives and to more advanced responsibilities. An elective course in ward organization and management has been planned for senior students this summer.

The Department was again affiliated with the Bryn Mawr College Summer School of Nursing which was financed this year by funds from the United States Public Health Service. Eighteen of our candidates enrolled, and sixteen of them transferred here on September 30. Professor Conrad served again as dean. Seventy-six of the eighty students who registered completed the summer course.

An affiliation with the Neuro-Psychiatric Institute of the Hartford Retreat was initiated in December. Eleven students have completed the eight weeks course in psychiatric nursing there. These students are college graduates re-

ceiving eight months of time credit. The new affiliation makes it possible for all students to receive instruction and experience in either neurological or psychiatric nursing.

All students now receive two weeks of field experience and observation under the Henry Street Visiting Nurse Service. We hope that this opportunity can be continued in spite of the demands of wartime service.

Degrees were conferred on graduates of the Department of Nursing as follows: seventeen in October, 1942; fifteen in February, 1943; three in June, 1943. At the graduation exercises in the Presbyterian Hospital garden, June 3, 1943, diplomas were granted to seventy-nine members of the class of 1943. During the year, sixty-nine graduates of the School took the licensing examinations in nursing under the Board of Regents of New York State. There were no failures.

The New York Chapter of the American Red Cross asked for the services of Professor Eleanor Lee to act as executive secretary of the reorganized committee for recruiting graduate nurses for the armed forces. Since February 1, 1943, she has been serving very successfully in this capacity.

Miss Manola Phillips resigned as recreational director in August. She was succeeded for the Winter Term by Miss Claire Reddington. Miss Hazel Goure assumed the duties as instructor when Miss Louise Stevenson left in September. When Miss Katherine Lewis assumed full-time teaching duties on October 1, she was succeeded by Miss Harriet Heffernan as a part-time instructor on night duty. On the resignation of Mrs. Elsie S. Hubbs, Instructor assigned to Neurology, Miss Lewis was appointed to her position. Miss Helen Christensen replaced Mrs. Cynthia Henderson, who resigned on February 1, 1943.

When we hear of the difficulties encountered by our colleagues elsewhere, we consider ourselves most fortunate to be part of a continuing program of medical education, with its attendant safeguards in teachers of sciences and clinical subjects. We are most grateful for the fine coöperation of the doctors in this respect this year.

The health of the student group has maintained a normal level in spite of the increased responsibilities which students are asked to assume. Great care has been exercised in the selection of students, and their coöperation has been sought in a program of sound hygiene. Student activities have continued on their customary schedule except that the absence of a permanent recreational director has resulted in fewer plays and concerts.

Through the coöperation of the Extension Department of Teachers College, courses in English literature, educational psychology, and history were given at the Presbyterian Hospital during the Spring Term. This arrangement provided economy of time, effort, and expense and was much appreciated by

our graduates who are working toward their degrees in Teachers College. Thirty-eight students availed themselves of this opportunity.

Fifteen of our graduates have been registered at Teachers College for specialized graduate study: ten in public health and five in institutional nursing. The federal government's appropriation for nursing education has assisted in financing this study.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor BENJAMIN P. WATSON, Executive Officer

On April 1, 1943, Dr. William E. Caldwell, Professor of Clinical Obstetrics and Gynecology, died. His loss is deeply felt by all members of the Department, for not only was he a skilled obstetrician and a wise counselor in cases of difficulty, but he was also an inspiring director of the particular research in which he was engaged. He had the satisfaction of knowing before he died that his new concept of pelvic abnormalities and his classification of pelvic types has been generally accepted in the world of scientific medicine and that his researches had put certain obstetrical manipulations and treatments upon a rational basis. The work which he inaugurated is being carried on by his collaborators, Professor D. Anthony D'Esopo and Dr. Howard Moloy.

With the reduction in staff resulting from the enlistment in the services of so many members, a curtailment in many activities has had to be made. These have been planned so that there has been no lowering of our standards of teaching or any shortening of time devoted to the students. Certain clinics and the research work which went along with them have had to be carried on in skeleton form only, but in such a way that full activity can be resumed as soon as conditions permit; such are the endocrine clinic, the fertility clinic, and the toxemia clinic.

## DEPARTMENT OF OPHTHALMOLOGY

Professor JOHN H. DUNNINGTON, Acting Executive Officer

The past year has been full of readjustments owing to the entry of ten members into the armed services. Professor Phillips Thygeson, the Executive Officer, was called to active duty in September, and his absence along with that of three other members of the research staff has resulted in a curtailment of the research activities of the Department. The staff was increased by the appointment of Dr. E. A. H. Hartmann as Assistant Clinical Professor, Dr. Gertrude Rand as Research Associate in the Knapp Laboratory of Physiological Optics, and Dr. Raymond G. Ingalls as Instructor.

The outstanding achievement of the research department was the isolation by Professor Murray Sanders of the virus producing epidemic keratoconjunctivitis. This work, which was largely financed by the Knapp Memorial Foundation, has won widespread recognition. The investigations he and Professor Alson E. Braley have conducted on the various epidemics of this disease have done much to increase knowledge of this malady. The use of convalescent serum in its treatment, as advocated by Professor Braley, has also proven to be of distinct value. The importance of these discoveries is attested by the holding of a symposium on epidemic keratoconjunctivitis at the School on December 4, 1942, at which time representatives of all branches of the armed forces and essential industries were present. In March, 1943, Professor Sanders entered the armed forces to continue his investigations on this and other virus diseases.

Also under the auspices of the Knapp Memorial Foundation Professor Ludwig von Sallmann has continued his studies on chemotherapy in ophthalmic infections. He has made a comparison of the efficacy of sulfadiazine and penicillin in pneumococcic infections and also reported on the introduction by iontophoresis of astropine and scopolamine into the eye. The penetration of penicillin in the eye was studied by him as was the hydrogen ion concentration of the vitreous in the normal and inflamed eye.

Dr. James L. Boyd, under a grant from the Harriman Fund, continued work on the action of various drugs used in glaucoma.

Professor Karl Meyer and Professor Braley have devoted a great part of their time to a war research project. Professor Meyer has also continued his studies on penicillin and on hyaluronidase and related enzymes. Professor Braley has isolated a virus from inclusion conjunctivitis but as yet has been unable to prove its etiological connection. His studies on the experimental and clinical use of sulfonamides have been continued and under the sponsorship of the Proctor Fund uveitis and the ocular manifestations of Brucellosis are being investigated.

Professor Thygeson prior to his entry into the service completed a most comprehensive review of viruses and virus diseases related to the eye, while Dr. Edward Gallardo, before he left, isolated a virus from a case of ocular pemphigus.

Professor Manuel Uribe Troncoso has presented the anatomical relationships between the angle of the anterior chamber, the iris, ciliary body, and zonular fibers. He has also studied operative techniques for the control of intraocular tension in rabbits.

Professor George K. Smelser has studied the thyroid pituitary physiology in relation to exophthalmos and the behavior of various types of fat tissue used in grafts to the orbit. He has also conducted an investigation of the role

of endocrine glands in the function and growth of sebaceous glands including the meibomian glands.

Owing to the diminished personnel the regular course for residents covering the basic sciences as related to ophthalmology was not given this year, but under the supervision of Professor Le Grand H. Hardy a comprehensive series of lectures and demonstrations was held. Dr. Arnold Knapp, Professor Emeritus of Ophthalmology, generously aided by giving twelve of these lectures.

There were forty-one contributions to the eye literature by staff members during the period. These articles covered all phases of ophthalmology, both clinical and research.

During the year the Knapp Memorial Fund, the John and Mary R. Markle Fund, the Francis L. and Elizabeth Proctor Fund, the Mary W. Harriman Fund, and the Snyder Ophthalmic Fund provided funds for special work in the Department. The following drug companies also contributed to the work done in the Department: Winthrop Chemical Company, Warner Institute for Therapeutic Research, the Schering Corporation, and the Parke Davis Company.

## DEPARTMENT OF OTOLARYNGOLOGY

Professor JOHN D. KERNAN, Executive Officer

The undergraduate teaching in the Department during the past academic year has been continued along the same lines which have previously been laid down. Each group of students as a whole receives several days of instruction in methods of examination and in the use of lights and instruments by Dr. George Browne; there are sessions in small groups for individual instruction in the Vanderbilt Clinic. Special instruction is given on hearing tests, vestibular test, anatomy of the nasal passage, and physiology of the voice by Drs. Frantz Altman, DeGraaf Woodman, and Bruno Greisman. Dr. Woodman's instruction is carried out in the Neurological Institute. Each group makes ward rounds in Presbyterian Hospital and Babies Hospital with Professors Kernan and George R. Brighton. These arrangements appear to cover the field as well as possible in the limited time available.

The hearing and deafness clinic has been considerably further developed under the direction of Dr. William J. Greenfield. There is now a technician for the making of audiograms and a psychiatrist who has experience in solving the special mental problems of the deaf. Technicians from two different hearing-aid companies attend sessions of the clinic to help in fitting hearing aids.

The courses for graduate students and residents have been continued as last year, although the attendance has been curtailed because of the reduction in the number of residents in otolaryngology in the affiliated hospitals.

During the year the laboratory of the Department has undergone considerable development. At the present time Dr. Harry Neivert is investigating the vitamin C content of the blood and the influence of low vitamin C on post tonsillectomy hemorrhage.

Dr. Greenfield has continued work on otosclerosis and greatly advanced the fistula operation for that type of ear disease. Dr. Greisman has made a study on the possibility of the invasion of the lung by heavy mineral oils when those substances are used as nose drops. Professor Brighton has continued the course in the technic on bronchoscopy and esophagoscopy during the year. This course was given twice for the benefit of the residents and outside practitioners. Dr. Jules G. Waltner has joined Dr. Altman in the laboratory and is giving all his time to work in the Medical School and hospital.

## DEPARTMENT OF PATHOLOGY

Professor JAMES W. JOBLING, Executive Officer

New appointees to the Department are: Dorothy L. Stevens as Instructor; Dr. Lise Lotte Graf as Assistant in Pathology; Dr. Sidney H. Stone, and Dr. Rudolf Colmers. Dr. Homer D. Kesten has been advanced to the title of Associate Professor and Dr. Clarence F. Schubert to Instructor. Dr. Joseph Esposito from the X-ray Department has been working in pathology. Assistant Professor Edith E. Sproul has been in charge of the teaching of the dental students and has also given lectures to the student nurses. Mrs. Hans Zinsser has been serving as a volunteer Assistant in Pathology. Dr. William J. Pyles was sent to Tulane University for a two months course in tropical medicine. It is planned to have him take part in the coöperative courses to be given in this subject.

Lectures were given during the course in pathology for the second year students by Professor Paul Klemperer of Mount Sinai Hospital; Dr. G. F. Machacek, Department of Dermatology; Dr. Maurice N. Richter, Professor of Pathology, New York Post-Graduate Medical School; Dr. William H. Woglom, Associate Professor of Cancer Research; Dr. Henry L. Jaffe, Hospital for Joint Diseases; Dr. Sidney C. Werner, Department of Medicine; Dr. David Marine, Montefiore Hospital; Dr. Joseph Victor, Goldwater Memorial Hospital; Dr. Homer Smith, New York University, College of Medicine.

Professor Abner Wolf and assistants have been in full charge of the course in neuropathology for second year students. The course has been reorganized and much additional material included. They have also taken an active part in the



training of neuro-surgeons, as they gave three intensive courses of about a month each to Army officers. Also a course in pathologic technique was given to a small group of Army officers assigned here for instruction.

Dr. William V. Cavanagh and Dr. Stanley M. Bysshe are carrying on the work of routine gross and microscopic examination of material from the Sloane Hospital for Women. In addition, the course in obstetrical and gynecological pathology is given to the fourth year students.

The Resident Pathologist, Dr. Richard van D. Knight, has completed a commendable investigation into Bowen's disease of the vulva and a study of superficial noninvasive intraepithelial epitheliomas of the cervix uteri.

As in previous years, necropsies on the Sloane infants have been performed by the Sloane resident, assigned for the year to the Sloane Pathological Laboratory, who has been supervised or assisted by a member of the Babies Hospital Pathological Staff. The coöperation between the two Departments has been most instructive, in that it has permitted the staff to study the pathology of the neonatal period and to become familiar with types of congenital malformations rarely seen in the Babies Hospital postmortem service.

Dr. Virginia M. Goddard, recipient of the Holt Fellowship in Pediatrics, has been serving in the laboratory for four months, rendering valuable aid in postmortem work and in the examination of surgical specimens.

In addition to sixty autopsies from the Neurological Institute, a large number of brains, cords, and surgical specimens from the Presbyterian Hospital and from Babies Hospital were examined.

The research work in the Department has naturally suffered because of the increased teaching load, the rapid turnover in personnel, and other difficulties incidental to war conditions.

Professor Jobling has continued his studies on the nature and property of intercellular substances with particular reference to senescence and wound healing. Professor Alwin M. Pappenheimer and Dr. Hans Kaunitz have continued their studies on vitamin E deficiency. Professor Kesten is pursuing his investigation of the influence of lecithin upon experimental atherosclerosis of rabbits and is also studying the influence of low-choline diets. He is collaborating with the Department of Dermatology in the investigation of skin lipids in patients with psoriasis. Dr. Edith E. Sproul and Dr. David Shemin have continued investigating the ability of red blood cells as well as various animal tissues of cancer and noncancer strains to utilize nicotinamide for the formation of cozymase in vitro.

Dr. Herbert C. Stoerk has studied the influence of calcium phosphate ratio in the diet upon the size and activity of the parathyroids. Dr. Clarence F. Schubert has as his problem a possible enhancing effect of sodium iodine upon the bacteriostatic action of sulfonamides on tubercle bacilli. Dr. Benjamin N. Berg is continuing his study on dietary influences in the production of antral and

fundus lesions of the stomach in rats. Professor Henry S. Simms is collaborating with Professor Edward L. Howes, of the Department of Surgery, and with Dr. Mary S. Parshley on the project connected with wound healing which is being supported by the Office of Scientific Research and Development. Dr. Hugo Hellendall has continued his studies on the transmission of virus lymphogranuloma venereum to the fetus. Mrs. Julia T. Weld is continuing her research work on staphylococcus toxin. Dr. Dorothy H. Andersen's excellent work on the celiac syndrome in children has been continued with the support of the Commonwealth Fund.

Professor Wolf has continued his work on toxoplasmosis. The two phases of the problem which are at present receiving most attention are the possibility of arthropod vectors and fetal transmission. Professor Wolf in collaboration with Professor Murray Sanders is investigating the pathology of the central nervous system of animals infected with the virus of keratoconjunctivitis. Professor Wolf and Dr. Kabat have published a study on the locations of phosphatases in the central nervous system.

Professor Theodore F. Zucker and Mrs. Lois Zucker have made a study of the supplementary value of seed flour from peanuts, cotton, and soya bean when added to white flour.

Assistance towards the research work of the Department has been received from the following sources, to which we wish to make grateful acknowledgment: The John and Mary R. Markle Foundation; William R. Warner and Company; University Patents, Incorporated; Mrs. Julia T. Weld; American Lecithin Company; William J. Matheson Commission; Josiah Macy, Jr., Foundation; Hoffmann-La Roche, Incorporated; Child Neurology Research; Commonwealth Fund; Fund for Wound Healing from the Office of Scientific Research and Development; and Traders Oil Mill Company.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN McINTOSH, Executive Officer

New appointments include those of Richard L. Day as Assistant Professor and of Annie V. Scott as Instructor, both on full time. Dr. Scott was head of the Department of Pediatrics at Cheeloo University Medical School in China until the dispossession of Occidentals by the Japanese shortly after the Pearl Harbor attack. Dr. Milton Singer was appointed Assistant on a part-time basis. The resignation of Professor F. Elmer Johnson, who as head of the pediatric service of St. Luke's Hospital had been in direct charge of elective courses in pediatrics there, was accepted with deep regret. When Dr. Samuel Karelitz joined the Army, Dr. Bela Schick generously volunteered to resume

direction of the elective course at Mount Sinai Hospital, in spite of his having passed the age limit for the attending staff of the hospital.

The cumulative depletion of the teaching staff of the Department has now reduced the roster to 68 percent of its total strength as of the autumn of 1941. The past year has witnessed no diminution in the burden of clinical responsibility borne by those who have remained in civilian status, the inpatient service of the Babies Hospital having continued to show an over-all increase in percentage occupancy of its clinical facilities and, likewise, a rise in the number of patient-days care provided over a given period of time as compared with similar indices of the past several years. Add to these circumstances the pressure and tension of the accelerated teaching program and there will be found little cause for wonder that the research activities of the Department have been greatly curtailed.

In spite of many practical difficulties, however, several projects previously launched have been kept in motion. Professor Donovan J. McCune has refined certain methods of evaluating renal function. Studies of amino acid metabolism have been extended by Professor John D. Lyttle and Dr. Elvira Goettsch in collaboration, their work being supported in part by a generous donation from Mrs. Brooks Emeny, in part by a grant from the Research Corporation. Professor Howard H. Mason has continued to explore the intermediary metabolism of carbohydrates. Dr. Hattie E. Alexander's studies of *Haemophilus influenzae*, which have received assistance from the Commonwealth Fund and also from the Influenza Commission of the National Research Council, have aimed at a more precise definition of the biology of these organisms and have greatly refined the quantitative aspects of therapy in infections caused by them. Professor Beryl H. Paige has extended her investigations of human toxoplasmosis; and Dr. Dorothy H. Andersen, with the help of a grant from the Commonwealth Fund, has pursued her dissection and definition of the celiac syndrome, involving an extension and precision of measurement of the enzyme activity of the exocrine secretion of the pancreas.

At the request of the Committee on Curriculum, and as a measure adapted to the demands of the accelerated teaching program, the Department organized a clinical clerkship for third year students under the initial direction of Dr. Richard G. Hodges and later, after he had joined the Army Medical Corps, under the supervision of Dr. Scott. Both of these instructors have devoted exemplary pedagogic zeal to this new project and have made it possible for the students participating to play an active part in the clinical work of the hospital and outpatient department.

In November, 1942, Dr. Alexander delivered the Rachford Lectures at the Children's Hospital in Cincinnati. Among the visitors to Columbia who lectured under the auspices of the Department in the course of the past year were Professor Ralph V. Platou, of Tulane University, Dr. Horace L. Hodes, for-

merly director of Sydenham Hospital in Baltimore, and Dr. Philip M. Stimson, of Willard Parker Hospital, who gave a demonstration of the Kenny treatment of infantile paralysis.

The L. Emmett Holt Fellowship was held during the last four months of 1942 by Dr. Virginia Goddard.

## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

Professor Horatio B. Williams, Dalton Professor of Physiology since 1922, was made Dalton Professor Emeritus early last fall. On this occasion a dinner in his honor was given by his colleagues and friends in the Medical School.

Dr. Kenneth S. Cole, Associate Professor of Physiology, has been on leave of absence since the beginning of the academic year. He is attached to the Metallurgical Laboratory of the University of Chicago. Dr. Howard J. Curtis, Assistant Professor, joined the same group in May and is likewise on leave of absence for the duration. In May Dr. Barry G. King, Assistant Professor, resigned from the Department and accepted a commission in the United States Naval Reserve.

New appointments include those of Dr. James B. Allison, Associate Professor of Physiology and Biochemistry at Rutgers University, who has been appointed Lecturer in Physiology, and Dr. F. J. W. Roughton of Cambridge University, England, and of the Fatigue Laboratory of Harvard University, who has been appointed Research Associate in Physiology. Dr. Shih-Chun Wang and Mr. William W. Walcott, Research Fellows, have been appointed Instructors. Dr. Richard R. Overman of Princeton University has also been appointed Instructor.

A recent rearrangement of the teaching schedule in the first year to provide for all-day laboratory sessions in physiology solves a number of problems in the organization of the course. The lengthening of the laboratory periods permits better integration of the experimental material and gives the students an opportunity to organize and assimilate their results and to discuss them with the instructors on the same day on which the work is done. Furthermore the new schedule makes it possible to formulate experiments on fluid balance, temperature control, etc., in which the students can serve as subjects, thereby increasing their interest in the observations.

The investigations on traumatic shock which have been carried out under the direction of Professor Gregersen progressed rapidly during the past year. Nearly every member of the Department contributed in one way or another to this program. In addition a number of investigators from other laboratories joined the group at various times to hasten the solution of special problems

that arose during the investigations. These men include Professor Cole, Dr. Allison, Dr. Roughton, and Drs. Laurence Irving and P. E. Scholander of Swarthmore College. The relation of the work to the war program does not permit presentation of a summary of the results. The investigations have been carried out under a contract, recommended by the Committee on Medical Research, between the Office of Scientific Research and Development and Columbia University. Additional support has also been received from the Josiah Macy, Jr., Foundation. Through the work of Dr. Robert P. Noble, Research Assistant, and of Professor Gregersen the Department has continued its collaboration with Professor Dickinson W. Richards, Jr., and his group in the study at the Bellevue Hospital of the physiology of shock in man. Correlation of the clinical with the experimental studies has been furthered by regular conferences. These clinical studies have proved exceedingly valuable in confirming on man the results obtained in experimental studies on animals.

Professor King and Mrs. Enid T. Oppenheimer, Instructor, collaborated in a special investigation connected with aviation medicine. Dr. Wang published a final report of his work on the localization of the salivatory center in the medulla of the cat. Dr. Ruth Rawson, Instructor, published the results of her studies on the binding of dyes by plasma proteins. The rate of disappearance of the blue dye, T-1824, from the bloodstream was the subject of two papers, one by Professors King, Cole, and Mrs. Oppenheimer and the other by Professor Gregersen and Dr. Rawson. Dr. J. Grant MacKenzie, at present flight lieutenant in the Royal Canadian Air Force, published a paper on some functions of the nonacoustic labyrinth, based on the work which he did under the direction of Professor Walter S. Root, to satisfy the requirements for the Doctor of Medical Science degree. Dr. Leonard W. Jarcho, who also worked with Professor Root, published the results of his studies of the effect of nembutal-ether upon blood concentration.

## DEPARTMENT OF PHARMACOLOGY

Professor CHARLES C. LIEB, Executive Officer

Under the accelerated program our teaching schedule was advanced by about three months. The second year class began the laboratory work in September and ended in March. The larger classes made some readjustment in laboratory space necessary but did not impair the scope of the course. The conference groups were considerably larger and the usual close relationship between instructors and students was somewhat less satisfactory.

The course offered to third year students by Professor Louis Hirschhorn was repeated five times during the year. Professor Hirschhorn felt rewarded for his efforts because the great majority of the class elected this course in human pharmacology.

The fourth year course was completely reorganized. Instead of appointing one man to give the lectures, fifteen outstanding men not associated with undergraduate teaching at our medical school were invited, each to give a lecture on a special subject. The list of outside lecturers follows: Dr. Harold T. Hyman, formerly a professor in the Department; Dr. Cary Eggleston, Assistant Professor of Clinical Medicine at Cornell Medical School; Dr. Peter Irving, secretary of the Medical Society of the State of New York and editor of the *New York State Journal of Medicine*; Dr. E. William Abramowitz, Director of Dermatology at New York Post-Graduate Hospital and Medical School; Dr. Emory Rovenstine, Director of Anesthesia at New York University Medical School; Dr. Norman Jolliffe, Assistant Professor of Medicine at New York University Medical School; Dr. Ephraim Shorr, Assistant Attending Physician at New York Hospital and Assistant Professor of Medicine at Cornell University Medical School; Dr. Max Einhorn, Professor of Medicine at New York Post-Graduate Hospital; Dr. Burrill B. Crohn, Associate Physician at Mount Sinai Hospital; Dr. A. Wilbur Duryee, Assistant Professor of Medicine at the New York Post-Graduate Hospital and Medical School; Dr. A. M. Fishberg, Associate Physician at Mount Sinai Hospital; Dr. Harold Wolff, Assistant Professor at Cornell Medical School and Associate Attending Physician at the New York Hospital; Dr. Jesse Bullowa, Clinical Professor of Medicine at New York University Medical School and Visiting Physician at Willard Parker and Harlem Hospitals; Dr. Meredith F. Campbell, Professor of Urology at New York University Medical School and Urologist at Bellevue Hospital; and Dr. Harry Most, Assistant Physician to Bellevue Hospital and Chief of Parasitology and Tropical Diseases at New York University Clinic.

The Department believes that the basis of all drug treatment should be a required subject in each of the three final years. In the present curriculum it is required only in the second and fourth years. The fact that almost every member of the third year class elects to take an optional course in pharmacology indicates that the students appreciate the need of continuity in studying this subject.

Professor Michael G. Mulinos and Mr. Leo Pomerantz have continued their work on the effects of inanition and starvation upon the endocrine organs of the rat. They have reported that the loss in body weight which occurs during complete starvation or underfeeding can be slowed by the concomitant injection of the so-called growth hormone factor of the anterior pituitary gland. The significance of these observations in the rat cannot be overestimated. It is believed that the human counterpart to the above-described depression of the pituitary gland by means of underfeeding is to be found in the syndrome of anorexia nervosa.

Professor Mulinos, Dr. Clifford Spingarn, and Miss Esther Maculla have continued their work on the effects of desoxycorticosterone acetate (DCA) on

kidney function. Professor Mulinos and Dr. Kurt Oster, an Upjohn Fellow, are investigating the manner of detoxification of amines within the body. This problem is closely related to the mechanism of hypertension.

Professor Mulinos and Dr. Marcel Goldenberg are investigating the pharmacology of certain benzodioxane derivatives. The investigation has been carried forward with the hope of using these drugs in the investigation of the cause of experimental hypertension in animals and spontaneous hypertension in animals and spontaneous hypertension in man. Professor Mulinos, Mr. Pomerantz, and Dr. Mary Lojkin have published further, in the *American Journal of Pharmacy*, on the toxicology of the glycols.

Professor Mulinos has continued his research on the pharmacology of inflammation. He has been able to establish the fact that the conjunctival method of Hirschhorn and Mulinos for the quantitative assay of irritants is superior in many ways to any other method yet devised. Professor Mulinos has written an "Outline of Pharmacology" which is to be published in the near future by the Oxford University Press.

The needs of the war and the success of the new series of lectures on applied pharmacology given to the fourth year class have emphasized more than ever the need for a course in therapeutics. Such a course should be given as a supplement to the course in pharmacology as is now offered to the second year medical students. The detailed knowledge of pharmacology and the skill in prescription writing which are acquired by the second year medical student suffers from the lack of continuity during the clinical years. It has been suggested that because of this lack of continuity the student tends to forget most of what he learned in pharmacology. Pharmacology as it is now taught in the Department takes the form of a fundamental preclinical subject comparable to that of anatomy, physiology, biochemistry, and any of the preclinical subjects. We do not believe that it is necessarily a weakness on the part of the subject matter taught or a criticism of the manner in which it is taught that the fundamental knowledge obtained is not utilized properly later. Since treatment is an ultimate aim of medicine, and diagnosis is but a stepping stone toward a better determination of the treatment which is to follow, it seems obvious that the fundamental aim of a medical education in the past has been subordinated, and there has been too much tendency to consider diagnosis as an end in itself. For these and other reasons it is believed and urged that a course in applied pharmacology and experimental therapeutics be instituted and made a part of the curriculum of the clinical years of medical education. As it now stands there is hiatus of two years between the teaching of pharmacology on the one hand and the practical use of drugs on the other. By the time the student enters his internship he has probably forgotten most of what he learned in pharmacology. It is little wonder that he then turns for help to the brochures of the pharmaceutical houses.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

The changes in the personnel of the Department made necessary by war conditions have, fortunately, been minor in nature, and therefore it has been possible to meet the situation created by the increase of educational activities without undue hardships.

The work of the Psychiatric Institute has not been reduced to any great extent in quantity or quality as replacements of physicians and other workers called to the armed services have been possible. In the Presbyterian Hospital group of psychiatrists, the basic staff remains the same. The general routine of this division of the Department continues as in other years with approximately the same number of consultations made; however, follow-up studies and intensive therapy have been curtailed except in selected cases.

Staff members have been engaged actively in war work. Professor George Daniels serves at the Army induction center and was a member of a military and civilian committee to organize regular scientific meetings at the local induction center.

There were forty-four psychiatrists associated with the Department of Psychiatry at the Vanderbilt Clinic during the year, but this number has been gradually reduced. Eight have joined the armed forces and six others have resigned or are on leave for various reasons. The clinic operated continuously throughout the summer because of the accelerated teaching program. An increasing amount of time has been spent in connection with local draft boards and induction centers concerning draftees who have been patients in this clinic.

It has been necessary to make but few changes in the student teaching program of the Psychiatric Institute. Because of necessary readjustment of the third year curriculum, the regular psychiatric teaching conferences for third year clinical clerks in medicine have been omitted for the duration. Much informal teaching on the wards in relation to consultations and follow-up has continued and will be further expanded. Arrangements have been made for the medical psychiatry staff to participate actively in the Saturday conferences of the medical staff for third and fourth year students.

A discussion of the emotional components of bronchial asthma was included as a part of a recent exercise on this problem, and on May 22, 1943, the staff was responsible for an entire program on war neuroses which was very well received. It has also been arranged to include among the fourth year lectures on medical therapeutics several lectures by a member of the Department staff, on psychotherapy in general medicine. It is hoped that shortly a companion group of lectures on common and generally accepted psychosomatic syndromes can be added to the third year systematic lectures in medicine.



Through a policy established by Dr. Daniel Blain, director of the medical department for disabled seamen of the Merchant Marine, the several rest homes throughout the country have been affiliated with nearby medical schools to make the clinical material available for teaching. The Department was invited to avail itself of such opportunities afforded by the Rest Home for Disabled Seamen at Gladstone, N. J. Dr. Paul Hoch, the attending psychiatrist, presented case histories and discussed the treatment of traumatic neurosis at a meeting of the staff and presented instructive cases to the third year and fourth year classes at the Saturday exercise on war neuroses. He discussed for the students who will soon be in the service the use of sedatives in acute traumatic cases. Opportunity has also been afforded for the third year elective students in psychiatry to spend time at Gladstone with firsthand contact with cases.

During the year the various social service groups of the Medical Center, including that at the Psychiatric Institute, have made it possible for students to secure a more rounded experience by attending meetings and discussions in the different departments.

Professor Robert McGraw gave lectures to three groups of Army surgeons on the psychological aspects of facial disfigurement and its treatment.

Between seventy and eighty publications were made by members of the Department on various investigations covering a wide range of topics within the field of mental medicine, neurology, neurochemistry, and genetics. Regular monthly staff conferences have been held during the year to present reviews on pertinent literature and to bring preliminary reports of investigation in progress for criticism and discussion. Special emphasis in the reviews has been placed on psychosomatic conditions arising in wartime.

The follow-up review of 1,500 serial admissions studied by Dr. Flanders Dunbar during the past eleven years has been continued, and about 150 serial admissions have been added during the past year. About 100 of these recent cases were given the Rorschach test. Dr. Dunbar was assisted in this work by Drs. A. Louise Brush and Siegfried R. Berthelsdorf.

A grant was arranged as of January, 1942, through the efforts of Professor Lewis and Dr. Dunbar, to cover fellowships for training in psychosomatic medicine and research, as well as to obtain secretarial assistance for psychosomatic research records and employment of a Rorschach expert to review research material. Dr. Berthelsdorf came on the staff as Fellow and Miss Camilla Kemple as Rorschach expert, early in the summer of 1942. Dr. Berthelsdorf was called into the service on March 1, 1943. Tentative arrangements have been made for the continuation and probable increase of this grant.

Some work has been carried along on the project for the study of behavior in conflict situations by Dr. Edward J. Strongin and Mrs. Nina Bull.

The research carried out under the financial support of the National Board

of Fire Underwriters has progressed very satisfactorily. Hundreds of fire setters have been studied from the psychiatric viewpoint. A number of interesting emotional patterns promoting the impulse to set fires have been revealed, and Dr. Helen Yarnell, who has been on full-time duty, is now preparing a book on "Pyromania" based on these studies. It is the most comprehensive piece of work ever done on this subject.

## DEPARTMENT OF RADIOLOGY

Professor ROSS GOLDEN, Executive Officer

During the fall of 1942 the Radiological Research Laboratory was organized with Dr. Gioacchino Failla, Professor of Radiology (Physics), as director. Associated with him are Dr. Edith H. Quimby, Associate Professor of Radiology (Physics), and Dr. Titus C. Evans, Assistant Professor of Radiology (Biology). Professors Failla and Quimby were associated with the Memorial Hospital, New York, for many years. Professor Evans has been studying the biological effects of Roentgen rays at the University of Iowa. Much time has been spent in securing and installing equipment and in organizing the staff. Professor Failla is actively engaged in the work of a National Research Council Committee directly concerned with the war. Professor Quimby, with Dr. Beverly C. Smith of the Department of Surgery, is investigating the circulation of blood of patients with peripheral arterial disease and in normal individuals, by means of the intravenous injection of radioactive sodium chloride solution. Grateful acknowledgment is made to the Department of Physics, Columbia University, for their coöperation in supplying the radioactive salt. Professor Evans is investigating the influence of cold and heat on the effect of X rays on young rats.

Dr. Paul C. Swenson, Associate Professor of Radiology, resigned to accept the professorship of radiology at Jefferson Medical College, Philadelphia, and directorship of the Department of Radiology at Jefferson Hospital.

With great regret, the untimely death on April 23, 1943, of Dr. Cornelius G. Dyke, Associate Professor of Radiology and Director of the Department of Radiology of the Neurological Institute, is recorded. During thirteen years of work at the Neurological Institute, he achieved outstanding success in the diagnosis of diseases of the brain and skull and made outstanding contributions in this field. Dr. Raymond W. Burford who was serving as resident in radiology in the Presbyterian Hospital, and who served for a number of months as Professor Dyke's assistant, has been appointed Associate in Radiology and is Acting Radiologist at the Neurological Institute. He is helping Dr. Leo M. Davidoff complete a book, on the abnormal encephalogram, begun by Professor Dyke and Dr. Davidoff, which was uncompleted at the time of

Professor Dyke's death. Dr. Burford is also covering Professor Dyke's teaching duties.

Professor Golden read a paper before the American Roentgen Ray Society, Chicago, September, 1942, on enlargement of the ileocecal valve; addressed the New Jersey Radiological Association and also the staff of the Halloran General Hospital, Staten Island, on diseases of the small intestine; published a paper with Professor Robert P. Ball on roentgen pelvicephalometry; and gave the instructional course on diseases of the small intestine at the American Roentgen Ray Society meeting, Chicago, September, 1942. He was elected to the American Board of Radiology and was elected president of the New York Roentgen Ray Society and president of the American College of Radiology in June, 1943.

Professor Swenson presented a paper on neoplasms of the small intestine before the National Gastroenterological Association, New York, in June, 1942, which was published in the *Review of Gastroenterology*, March, 1943. He also read a paper on the radiological aspects of Ewing's tumor before the American Roentgen Ray Society, Chicago, September, 1942.

Professor Murray Friedman prepared a *Manual of Radiotherapy Technique*. This was primarily a review of techniques in use at the Presbyterian Hospital. In the first four months nearly a thousand copies of this manual were sold.

Drs. Lois C. Collins, Paul H. Ducharme, and Joseph J. Esposito are assisting in the routine undergraduate teaching in the Department.

## DEPARTMENT OF SURGERY

Professor ALLEN O. WHIPPLE, Executive Officer

With a diminishing staff in the School and Hospital, chiefly because of the departure of the Presbyterian Unit, Base Hospital No. 2, for foreign service, it has become increasingly difficult to maintain the former standards of caring for the patients in the hospital who require surgical care and of teaching the students now working under the accelerated program. Nevertheless, during the past year the number of operations performed was only slightly less than the year before.

Research activities have been definitely curtailed; the investigations that have been carried out have been largely those connected with war projects under the Office of Scientific Research and Development. These have had largely to do with the bacteriological and chemotherapeutic aspects of contaminated wounds and burns, both in the unit at the Presbyterian Hospital and in the laboratory of surgical bacteriology under Professor Frank L. Meloney and Dr. Ivan C. Hall, where all the reports from the eight units in the United States, as projects under the Office of Scientific Research and Development, are collected and analyzed.

Another important project is being carried out by Professor Edward L. Howes and Professor Henry S. Simms on wound healing. Professor Howes, by an original method of measuring wound healing in the rabbit's ear, has been studying the effects of different local applications with and without sulfonamides. Professor Simms, by tissue culture, has been studying the effect of a filterable tissue stimulating substance made from adult tissue rather than embryonic tissue.

Professor Arthur H. Blakemore, working with Dr. Jere Lord of the New York Hospital, has devised a nonsuture method for anastomosing severed main arteries, and for bridging actual defects in damaged vessels. The method has proved successful when used in conjunction with sulfonamides in open, dirty wounds in 80 percent of the experimental animals, where the femoral arteries had been severed and ligated twenty-four hours before the nonsuture anastomoses were performed.

Professor Blakemore has continued his studies in vascular surgery. The operation of wiring and electrothermic coagulation of arterial aneurysm has been performed in excess of 200 times since its adoption in 1935. The earliest case, with an aneurysm of the ascending arch, continues symptom free eight years since operation. The hazard of infection, a problem in the earlier operations, has been eliminated.

A method to accomplish gradual occlusion of a major artery without incurring the risk of delayed hemorrhage from necrosis of the vessel wall has long been sought. The use of wide rubber bands over several layers of cellophane has enabled Professor Blakemore to accomplish gradual occlusion of the carotid artery in a one-stage procedure.

Our entire resident system, which had required years to develop and organize, has been disrupted for the time being by the war emergency. This is a serious setback for it had taken years of effort in overcoming prejudice and inertia to develop the resident system to its fine point of efficiency. As a result of the limited resident and intern staff the Department is depending more and more on surgical clerks from the Medical School to help in the wards and operating room, and it is a pleasure to take this opportunity to express appreciation of their constant coöperation and able assistance.

Because of the war, the accelerated program, and the shortened internships, the effort has been made to instruct the students in the problems connected with the care of war casualties and to present to them the newer aspects of treating contaminated wounds, compound fractures, burns, and shock. This has met with a very evident interest and appreciation on their part.

The Fracture Service has had a busy year with three of its attending staff in service with the armed forces. In addition to problems of the accelerated Medical School schedule, intensive courses in surgery of the extremities have been given to groups of members of the Army Medical Corps. Also, members of the Medical Corps of the Army and of the Navy have been assigned to the service

for three months of training in the handling of fractures. The staff has been coöperating with Professor Meleney on studies in compound fractures under the auspices of the National Research Council. Professor Clay Ray Murray, in association with Professor Colin G. Fink of the Chemical Engineering Department, has carried on experimental work on the reaction between certain metals and body tissues, in connection with the internal fixation of fractures.

The teaching in the division of orthopedic surgery has been conducted with all possible emphasis on those subjects which are of particular importance in military practice. Clinical instruction for the fourth year students has been conducted at the New York Orthopaedic Hospital, supplemented by the lectures for the third year class. The participation of the Department in the course in applied anatomy gives an opportunity to lay a groundwork for orthopedics.

Graduate instruction which has been done through residencies and fellowships of necessity has been curtailed to a large extent because of the difficulty in securing men for these positions. It is anticipated that there will be a great demand for these services after the war, and plans are being laid for meeting this need.

The instruction of medical officers from the Army assigned to Columbia University for short courses in anesthesia, thoracic, neurological, plastic, and extremity surgery has been in progress since September. We are now getting better selected and qualified groups of officers for these courses, and the demand for them by the Army surgeons is increasing. In all the courses offered a two weeks period of instruction in the basic principles of surgery is given before the specialty is begun. Professor Jerome P. Webster's three months course in plastic surgery has been in especial demand. He has spared neither time nor effort in organizing this instruction. The course in thoracic surgery is being given by Professor Adrian V. S. Lambert at the Bellevue Hospital, the course in neurosurgery under Professor Tracy Putnam at the Neurological Institute, the course in surgery of fractures and the extremities under Professor William Darrach at the Presbyterian Hospital, and the course in anesthesia is given both at the Presbyterian and Bellevue Hospitals, the latter under Professor Rovenstine of New York University.

The staff at the Bellevue Hospital has been even more depleted than at the Presbyterian Hospital, and Professor Constantine J. MacGuire, Jr., deserves great credit for carrying on as he has done. We are greatly indebted to Professor Lambert for returning to take charge of the fine service in thoracic surgery at Bellevue which he organized and developed and turned over to Professor Frank B. Berry who is now on leave in charge of the Roosevelt Surgical Unit in Africa.

The entire Medical Center is proud of our own Base Hospital No. 2, taking the same title as the Unit that was organized by Dr. George E. Brewer and which rendered such distinguished service during the First World War. Organized under the splendid leadership of Professor William Barclay Parsons

as surgical chief, the Unit spent several months at Camp Meade. Before leaving for England the Unit was greatly concerned at losing Colonel Parsons, who was assigned as Surgical Consultant to the Australian area. He was succeeded by Major Rudolph N. Schullinger who has more than won his advancement to Lieutenant Colonel by his accomplishments in establishing the Unit in one of the finest war hospitals in England. He has been given every help and coöperation by the rest of the staff, and their praises are heard on every side, both in England and here, from the wounded, treated in the Unit, and now transferred to this country. In addition, attention should be directed to the fine record made by Major Barbara Stimson of our Fracture Service, now in the British Army, and to that of Lieutenant Commander Stephen S. Hudack, also of the Fracture Service, now returned to the Navy in this country after distinguished service in the South Pacific.

It is with sincere regret that we record the death on February 14, 1943, of Dr. William Cogswell Clarke, who for twenty-five years was a member of the Department of Surgery of Columbia University in charge of the laboratory of surgical pathology. From a small beginning with a single desk in 1905 in Dr. Pruden's laboratory he developed a Department of Surgical Pathology which was of the greatest value in teaching the fundamentals of surgery during the second year course, and which gradually expanded to its present occupancy of a floor in the Medical School building. Dr. Clarke had a very remarkable influence among the students, not so much because of his work as a teacher, as because of his stimulating interest in the etiology and pathology of surgical lesions. His repeated question "How do you know?" became legend among his students. His keen interest in education in the true sense and his forthright honesty and insistence upon getting at the facts will always be a permanent tradition in the Department of Surgery.

On March 13, 1943, our beloved Associate Dean, Dr. Frederick T. van Beuren, Jr., died after a short illness. To many generations of medical students Dr. van Beuren was known as the Associate Dean, and his fine influence in that position among the students was one of the great assets of the School. Those of us who knew him as a surgeon and in his earlier days as a teacher in anatomy and surgery will always remember him as a delightful friend and courteous gentleman.

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

The undergraduate teaching, because of the diminished number of instructors and residents in the Department, has seen more active use of students directly in the function of diagnosis, operation, and aftercare of patients. The enthusiastic help of the students has made possible the hospitalization of practically the same number of patients.

The graduate teaching program has been suspended for the wartime due to the impossibility of keeping residents long enough to enable them to complete an acceptable program.

Dr. John K. Lattimer completed his investigation in the Department of Anatomy under Professor Earle T. Engle and received his degree of Doctor of Medical Science in June. Dr. Thomas J. Sullivan completed his program with Drs. Alexander and Ethel B. Gutman and published his thesis upon the effect of castration on serum acid phosphatase in cases of prostatic carcinoma, and will be a candidate for the degree of Doctor of Medical Science upon completion of his residency.

Dr. Ole J. Jensen has completed his investigations as to the factors of renal excretion of the sulfonamides under the direction of Professor A. Raymond Dochez in the Department of Bacteriology and published his thesis with Dr. Charles L. Fox, Jr., of the same department.

A half share of the Joseph Mather Smith Prize was awarded by the University to Dr. Lattimer for research in the effect of testosterone upon renal hypertrophy and renal function.

The Stevens Triennial Prize was awarded by the University to Dr. Jensen for research in hydrogen ion concentration and the solubility of sulfanilimides in urine and the relation to renal precipitation.

The collaboration of the members of the staff with members of other departments in investigative problems has continued. Papers have been published and presented during the year before various medical societies by members of the staff.

## MEDICAL LIBRARY

THOMAS P. FLEMING, Librarian

The number of books used within or removed from the library continues to decline as a result of the same factors enumerated in the last report. Nevertheless, the library has broadened its activities in certain fields to such an extent that, while there is no resultant increase in the statistics of use, we have been able to set up routines and develop activities which prevent a greater decline and provide a more complete type of library service.

The various courses which are given to Army medical officers involve a considerable amount of background reading. The library has made a special effort to procure such literature and to make available promptly sufficient copies to meet the demand. Each new plastic surgery group was given an introductory lecture on the use of the library which was a timesaver not only to them but to the library staff as well. Because of the "dim-out" regulations it was necessary to move the military medicine alcove to the periodical reading room where the overhead lights may remain burning. The library has made a concerted effort

to acquire every new publication relating to military medicine and surgery even though the format may be ephemeral.

The collection of literature in certain other fields has also been augmented in the past year. Literature on nurses and nursing has been considerably developed. The National League of Nursing Education issued a *List of Books Suggested for Libraries in Schools of Nursing* which was checked against our library's holdings, and all important lacunae were filled. South American medical literature continues to be developed. From this source, we receive the current numbers of approximately 150 journals. Steps are being taken to develop our collection of literature in the fields of tropical medicine and parasitology. The checking of various bibliographies reveals that our collection is not without merit except in Italian and Indian literature. Steps have been taken to eliminate our gaps in Indian literature, but events seem to indicate that we shall have to wait several months before the Italian literature can be acquired. Current foreign language literature is still available in one form or another.

A little progress has been made in the cataloguing of the Webster Library of plastic surgery. The cancer research library has now been completely catalogued to date. The Medical Library now has approximately 117,000 volumes. In size, it ranks seventh in the country among medical libraries.

While the history of medicine seminars and lectures have been discontinued because of the war, there has been a greater use of historical material than ever before, due primarily to the fact that two members of the medical staff have been engaged in writing textbooks in the history of medicine. The library staff has been of assistance in the selection of illustrations and in the verification of citations.

Through the courtesy of Dr. Alfred E. Cohn, P & S, '04, we were given a first edition of William Withering's *An Account of the Foxglove and Some of Its Medical Uses: with Practical Remarks on Dropsy and Other Diseases*, Birmingham, 1785, xv, 208 p. This work is one of the great classics of medicine and has become extremely rare and costly.

The Departments of Cancer Research, Otolaryngology, and Neurology all made substantial contributions toward the purchase of books and periodicals. Professor Jerome P. Webster contributed liberally for the purchase of books relating to plastic surgery. The Phi Delta Epsilon Fraternity gave an additional gift of fifty dollars for the purchase of books as a memorial to Dr. Jacob Braun, P & S, '05. The excellence of our collection in many fields is due to the generosity of alumni, Faculty, and friends.

## NEW YORK POST-GRADUATE MEDICAL SCHOOL

Dr. WILLARD C. RAPPLEYE, Director

There were 595 physicians enrolled in the School during the academic year as compared to 554 registered the previous year. This increase in enrollment during wartime was unexpected and gratifying. The physicians enrolled came



from thirty-seven states and one territory of the United States and from sixteen foreign countries. In addition to the twenty-six physicians enrolled from Latin American countries, a number of physicians came from these countries as visitors for short periods, including a group of six physicians sponsored by the government of Chile and a group of eight young physicians from Brazil.

The following table gives the number of enrollments in each of the teaching departments:

## REGISTRATIONS OF PHYSICIANS BY DEPARTMENTS

Bacteriology . . . . .	0	Pathology . . . . .	6
Dermatology and Syphilology . . . . .	78	Pediatrics . . . . .	37
Gynecology . . . . .	54	Radiology . . . . .	12
Medicine . . . . .	233	Surgery . . . . .	
Neurology and Psychiatry . . . . .	20	(including Anesthesia) . . . . .	40
Ophthalmology . . . . .	28	Traumatic Surgery . . . . .	70
Orthopedic Surgery . . . . .	21	Urology . . . . .	5
Otolaryngology . . . . .	4	Interdepartmental courses . . . . .	30
			<hr/>
Total . . . . .			638 <sup>a</sup>

<sup>a</sup> This total is larger than the total number of physicians enrolled because some physicians took courses in more than one department.

Investigations in progress in the Department of Bacteriology in previous years were further developed. They may be classed under five main heads: (1) bacteriophages, (2) viridans endocarditis, (3) viruses, (4) healing agents, and (5) antiseptics. The studies concerning the nature and use of bacteriophages have been in progress for about fourteen years, and the Post-Graduate has become an important center for the distribution of information concerning these agents and for supply of the bacteriophages to be used in the prophylaxis and the treatment of disease. Early in 1942, a group of citizens became interested in the possible use of bacteriophages in the control of dysentery and diarrheal disorders in the armed forces of the United States, in part because of the reports in regard to their successful use in Russia, India, Germany, and North Africa, and the group has placed funds at the disposal of the Department for study in this field. This work is of a confidential nature, and the reports have been sent to the Surgeons General of the Army and the Navy. Another, newer extension of the bacteriophage studies has resulted from the discovery of bacteriophages active against certain bacterial strains of *Streptococcus viridans*. These bacteriophages are now being tested in animals and also as therapeutic agents in the human disease known as subacute bacterial endocarditis or endocarditis lenta.

The investigations of experimental endocarditis, in progress for several years, have assumed the proportions of a major research project. The out-

standing accomplishment has been the transmission of the highly fatal human disease, endocarditis lenta, to experimental animals by the procedure of repeated intravenous inoculation of the bacterial cultures. The human disease is generally recognized as desperate; hence any suggestion emerging from the experimental studies is grasped by the physician at the bedside in the hope that it may help to save his patient.

The studies of the nature of viruses and the control of virus infections, initiated in 1940, have been continued. Observations in this Department have shown that the virus of vaccinia and the virus of influenza may be quickly inactivated by the application of certain mild antiseptic agents.

In attempting to take advantage of the opportunities presented in the research field, the Department has been seriously crippled by lack of adequate laboratory space and equipment. Funds are already in hand to provide additional personnel to aid in these studies, if it were possible to provide a place in which they could work.

The teaching program of the Department of Dermatology and Syphilology continued without change although there was a decrease in enrollments in the three-year course of training for specialization because of the war. During the year, the Department added more than two thousand lantern slides to its teaching equipment and provided an X-ray working model in the physical therapy division.

In spite of the increasing pressure of wartime activities and the fact that a number of physicians left for military service, members of the staff of this Department completed thirty-six research problems, of which those on the following subjects are especially worthy of note: respiration of keratoses and cancer; evaluation of preparation No. 4197 (arsenobenzene) in cerebrospinal syphilis; the time factor in irradiation; the area factor in irradiation; shock-proof X-ray apparatus in dermatology; lipid metabolism in xanthoma diabetorum; vitamin A determination in ichthyosis and Darier's disease; a new electrosurgical method for destruction of plantar warts; histopathology of intracutaneous skin tests; eosinophile count in contact dermatitis, seborrheic dermatitis and atopic dermatitis; histochemical studies of pigment processes in the skin; production and measurement of colloid clouds in blood serum lipids; monometric skin studies to determine metabolism of pigment; and the relationship of porphyrin metabolism to the dermatoses.

Teaching in the Department of Gynecology stressed the part-time clinical courses which attract physicians practicing in and near New York City. Despite the induction into military service of a considerable number of the staff, a number of clinical investigations were continued. Several endocrine problems were studied, such as the utilization of conjugated estrogens in pregnant mares' urine, the determination of estrogen activity in lipid extracts of the ovary, the value of oral progesterone in cases of habitual abortion,

the use of emulsion of estrone to supplant pellet implantation in menopausal disturbances, and the application of low modalities in endocrine dysfunction. New methods of treatment are under constant study in the special clinics of the Department, so that the results may be evaluated for the benefit of matriculates as well as for patients.

Professor Irving S. Wright, Executive Officer of the Department of Medicine, left for active duty in the Army Medical Corps in August, 1942, and Professor Walter G. Lough assumed charge of the Department during his absence. Although many of the most active members of the teaching staff left for military service during the year, it was possible to continue the varied curriculum because of the willingness of the remaining members of the Department to assume increased responsibilities. The weekly staff conferences were continued, and a series of monthly symposia on medical subjects of current interest was initiated. In October, the division of metabolism inaugurated weekly staff conferences, while the thyroid division and the gall bladder division each continued their weekly conferences. The meetings of the Research and Journal Club were, however, discontinued in October for the duration of the war.

It became difficult to maintain the heavy clinic schedules of the Department in view of the number of physicians entering the armed forces, and it was unfortunately necessary to close the newly organized clinics for the study of geriatrics and of psychosomatic medicine. It is hoped that these clinics can be reopened after the war, because of their close relation to the teaching program.

Many research projects of the staff were curtailed by the war activities, but a considerable number of studies were completed during the year. Among these were a group of studies of chronic ulcerative colitis, including metabolic and vitamin studies, prothrombin and fibrogen studies, and investigation of the use of sulfailylguanidine and of glucose and dextrin tests. Several studies of the pancreas were completed, under grants from a pharmaceutical company and from the Oliver-Rea Fund.

The Medical Research Laboratory continued various studies of cholesterol and also completed studies of the following subjects that are of special interest: iodine metabolism in thyroid disease, the excretion of iodine by the salivary and gastric glands, the fractionation of iodine in the blood, galactose tolerance studies with special reference to thyroid disease, urinary suppression due to sulfathiazole, and the metabolic effects of testosterone implants.

Special mention should be made of the completion of the survey of nutrition on the west coast of Newfoundland which was a joint undertaking of the Department of Medicine and the Newfoundland Department of Public Health and Welfare.

The members of the teaching staff in the Department of Neurology and

Psychiatry devoted more hours to teaching than in the previous year as there was larger enrollment in the various courses offered for practitioners and for specialists. Participation in courses offered by the Department of Medicine and in interdepartmental courses was also increased. Several members of the staff have been conducting examinations at an Army induction center, in addition to those who are in regular military service. Some of the latter group contributed to the literature on neuropsychiatric problems in the Army. This Department unfortunately has no facilities for experimental research at the Post-Graduate.

The short courses offered by the Department of Ophthalmology to specialists in this field continued to draw men from all parts of the country. A short course in surgery of the eye was organized and will be repeated in 1943. Members of the staff have been working on various clinical problems, but no laboratory space is available for research.

The staff of the Department of Orthopedic Surgery has continued, in spite of having a large proportion of its members in military service, to give short courses for general practitioners. The seminar for surgeons was extended to a ten-day course and given in January. Various investigations begun in previous years were continued, as far as wartime duties permitted, and special emphasis was placed on the study of treatment of hereditary weak feet because of its importance to the armed forces.

Several advanced courses in special subjects were arranged during the year for qualified specialists in otolaryngology, and some teaching was done in courses offered by other departments, although several senior members of the teaching staff were in military service.

Although the enrollment in courses in pathology declined after the war began, the staff of this Department continued to collaborate in the teaching programs of other departments. The clinical-pathological conferences were held as before, and accounts of those that were held with the Department of Medicine were published in the *New York State Journal of Medicine*. Some investigative work was continued, though opportunities for it were limited.

The teaching program of the Department of Pediatrics was uninterrupted during the year as the demand for courses continued, and substitutes were found among the remaining staff members for those who entered the service. Research studies during the year dealt with such subjects as blood phosphorus in anemia in children, infantile eczema, chronic sinusitis in children, and pancreatic function in children.

Although the demand for three-month courses in radiology decreased during the year the members of this staff took an increasing part in courses offered by other departments, especially medicine, surgery, and traumatic surgery. The staff was so curtailed in number that it was impossible to conduct re-

search and at the same time meet the pressing demands of the hospital service and the teaching program.

The Department of Surgery carried on its usual heavy program of part-time and full-time courses, although several who formerly carried heavy teaching loads are in the Army or Navy. The Department again conducted two days of the program of the Symposium on General Surgery, in which various hospitals affiliated with Columbia University coöperate, and members of the division of plastic surgery assisted in courses given at the College of Physicians and Surgeons to medical officers of the Army.

In all divisions of the Department, the research program was curtailed by the pressure of added responsibilities, but some studies were continued. The division of vascular diseases completed a motion picture, to be used for teaching, on advances in the treatment of arterial aneurysms by muscle implantation. The division of plastic surgery conducted experimentation with skin transplantation with an organic coagulant. Other members of the Department presented results of treatment of all types of ulcers at the convention of the American Medical Association in June. The staff of the rectal surgery division continued their study of pruritus ani and the results of sulfathiazole therapy.

As would be expected, the demand for courses in first aid and in traumatic surgery increased after the war began, and the Department of Traumatic Surgery did much to meet the demand, although about half of the members of the staff entered military service. An additional course for general practitioners was given in June, and the other courses were well attended. Three series of lectures on the emergency treatment of trauma were given for doctors and nurses on the staff of the Post-Graduate, and a number of special lectures were given to medical officers at nearby Army camps. This was in addition to lectures given to local medical societies in various parts of the state of New York. This Department also conducted a considerable part of the new inter-departmental course in industrial medicine and conducted a full day in a course in industrial hygiene given by the DeLamar Institute of Public Health of Columbia University. Especial attention has been given by members of this staff to studying the aftereffects of the use of sulfa drugs in treating wounds and burns, a study which will be continued.

The continuance of the excellent enrollment in the School is most gratifying. It could well have been expected that the number of physicians coming to New York during the war for post-graduate studies would drop sharply but our experience has been the opposite. Many physicians are now brushing up in various fields of medicine in order to return to medical practice (in instances where they have retired) or to take on additional responsibilities in their local communities during the war emergency.

Active consideration is being given to post-war needs of medical education. Many problems will confront the educational institutions and the Post-Graduate will be called upon to do its full share. There are many indications that the type of postgraduate training after the war will be somewhat different than heretofore. It can be expected that the returning doctors, many of whom have had abbreviated medical training in the fundamental and medical sciences as well as a shortened clinical preparation for civilian practice, will desire to go to institutions where they can be brought abreast of modern developments in these scientific fields. If this occurs, the institutions desiring to conduct satisfactory postgraduate medical education will have to provide up-to-date laboratories and other facilities for the proper training of these men, many of whom will have had more excellent facilities and professional opportunities in Army and Navy hospitals during their war service. There seems to be urgent need of developing plans at the Post-Graduate for modern laboratory and clinical facilities for the instruction of such men if the institution is to discharge fully its post-war responsibilities.

### SCHOOL OF TROPICAL MEDICINE<sup>1</sup>

Professor PABLO MORALES OTERO, Director

This has been a year of trying circumstances for Puerto Rico and for its people, and the School of Tropical Medicine has not escaped the consequences even though it has not suffered as much as might have been expected. The high light of its past year was the very generous gift of Mrs. Pauline Riggs Noyes, a former resident of the Island, who bequeathed the sum of fifty thousand dollars to the School in memory of her husband, the late Mr. Robert B. Noyes.

The pressing need of both the Army and Navy for the services of trained medical men has aroused a feeling of disturbing uncertainty as to the status of many of the School's Faculty members and staff personnel. These two branches of the armed forces have already absorbed into their ranks: Dr. R. Rodríguez Molina, Assistant Professor of Tropical Medicine; Dr. A. Díaz Atilés, Associate in Pediatrics; Mr. John M. Henderson, Assistant Professor of Sanitary Science; and Dr. Manuel Chiqués, Resident Physician of the University Hospital.

The School has furthermore had to surmount obstacles that have come out of the present transportation situation. Technical equipment needed for various research studies has been held up and delayed month after month, awaiting priority authorization. On the other hand, added impetus was given a special research project of the Institution by the continuation, through legislative action, of the grant that made possible during the past year the study of the prevalence of Weil's disease and typhus fever in Puerto Rico.

<sup>1</sup> For complete report see the Report of the Director of the School of Tropical Medicine.

It has likewise been practically impossible to secure shipments of the concentrated food fed to experimental animals in normal times. This scarcity has forced the Department of Chemistry to study the formula for a new diet that can be prepared locally and which, after certain modifications, is giving fairly satisfactory results. In like manner the Santiago Primate Colony has suffered from the shortage of foodstuffs and from the accompanying steady rise in prices, all of which have taxed the initiative of those in charge.

Notwithstanding present-day traveling difficulties, the School has persisted in its policy of maintaining close contacts with the outside world by bringing in for teaching and advice leading world scientists who always leave in their wake so much of inspiration and enthusiasm. Although the number has necessarily been limited this year, it is a pleasure to note the visit of Dr. Gustavo Pittaluga, of the University of Madrid, leading world authority in hematology. He held conferences on various subjects and offered a course of four lectures which aroused immense interest among the local medical profession. Shortly afterwards, Dr. Cecil J. Watson, of the School of Medicine of the University of Minnesota, was guest speaker of the Puerto Rico Medical Association at its annual meeting, when he also lectured at the School. Dr. Lydia J. Roberts, of the University of Chicago, conferred with the Director while in Puerto Rico at the behest of the Federal Government to study local problems of nutrition; Dr. H. M. Miller, Jr., of the International Health Division of the Rockefeller Foundation, also visited the School on his return trip from South America.

In January, 1943, there was held in the auditorium of the School the second annual meeting of the Puerto Rico Public Health Association, affiliated with the National Public Health Association. The sessions lasted three days during which scientific papers were presented by members of the staffs of both the Insular Department of Health and the School. In the elections that followed, Dr. Morales Otero, Director of the School, was elected president and Dr. Guillermo Arbona continued as secretary.

The tragedy surrounding Professor William A. Hoffman's death is still fresh in our minds, and the shock of its unexpectedness a heavy blow. For sixteen years Professor Hoffman had been associated with the School, a definite part of the school life, as Assistant Professor of Parasitology. Just when he was about to leave for Brazil where he was to help in the development of a similar institution, when he might have reaped the fruit of his many years of studious work, Professor Hoffman died. His colleagues now mourn the loss of a friend and of a valued scientist.

At the last meeting of the Special Board of Trustees Mr. Félix Lamela, Executive Secretary, was granted a year's leave of absence to devote to the organization and development of the Inter-American Hospital Association for which plans were laid in 1940.

Dr. Rurico S. Díaz Rivera, of the University Hospital staff, was permitted

a leave of absence for postgraduate studies at the University of Pennsylvania. Professor Donald H. Cook, head of the Department of Chemistry, will be absent on leave during the coming academic year 1943-44, when he will return to the Department of Chemistry of Columbia University to take part in the teaching program.

The following appointments have been made during the year: Dr. Hazel E. Munsell, as Research Associate in Clinical Medicine, who is working on the vitamin content of native diets; Dr. Arbona, as Assistant Professor of Public Health, who will act as head of the Department of Public Health; and Mr. Nelson Biaggi, as Assistant in Sanitary Science in the same department.

Conditions abroad naturally continue to affect the distribution of the *Puerto Rico Journal of Public Health and Tropical Medicine* by cutting off practically all its foreign subscribers. However, the increasing relations with Latin American nations makes the bilingual character of the *Journal* more and more of a vital link between our respective countries.

The Director sent to the Library a collection of material belonging to Dr. George W. Bachman, covering the fields of helminthology, protozoölogy, and parasitology and containing 2,111 reprints, forty-one annual reports, and 184 other items (parts of journals, theses, monographs, etc.). Duplicates with library collections will be offered in exchange and the rest added to the records. As authorized by the Director, 675 reprints were donated to the Department of Biology of the University of Puerto Rico, and 213 were selected by Professor Hoffman and Dr. J. Oliver Gonzalez as of value to them.

As soon as hostilities commenced, the School realized immediately the need for extending its teaching activities to include courses which would prepare medical men for service in the armed forces stationed in tropical areas. A course of studies was accordingly outlined and submitted to the consideration of the Surgeons General of the Army and Navy. Contingents of continental troops with their respective officers continued to arrive on the Island and, in due course of time, medical problems directly related to and resultant of local conditions in the country began to affect the lives of these men and to attract the attention of those charged with their well-being. At the request of a group of officers, the School prepared a short lecture course on schistosomiasis, on the parasitology, clinical aspects, and pathology of the disease, which was attended by twelve members of the Medical Corps. Again at the request of this same group, a similar lecture program was prepared on malaria. Twenty-one officers attended this last course.

The Department of Pathology continued its coöperation with the Insular Department of Health in training its men for service as pathologists in the district hospitals of that Department. Dr. Guillermo M. Carrera, former Resident Physician of the University Hospital, was likewise trained and now forms part of the personnel of the Department of Pathology. Miss Iluminada Lugo, of the



Hospital Santo Asilo de Damas in Ponce, received training in pathologic technique during two months.

Several students were enrolled for special work in the several departments of the School: Dr. Carlos Calero M., of Manta, Ecuador, Dr. José de Jesús Alvarez and Miss María Dolores Fernández of the Dominican Republic, Miss María Teresa Almonte from Ponce, and Miss Sylvia Millán of San Juan.

The regular course in medical technology has been carried forward on schedule, and fourteen students have enrolled in it. During the first semester the following courses were given by staff members of the School: *Medical Bacteriology and Immunology* (nine weeks), *Medical Parasitology in Puerto Rico* (ten weeks), *Introductory Quantitative Analysis* (twelve weeks). The second semester's work consists exclusively of clinical pathology.

During a fortnight in February, Miss Aimee Wilcox, of the United States Public Health Service, gave a short intensive course on the microscopy of malaria. A total of fifty-two persons, including the group of medical technologists and members of the armed forces detailed to laboratory work, attended it. In addition, Dr. Honorato de Castro, formerly of the University of Madrid and now at the University of Puerto Rico, gave a series of lectures on biostatistics for this special group.

The Department of Public Health will shortly initiate a course for sanitary inspectors under the direction of Dr. Arbona. Regular courses for public health nurses, sanitarians, and health officers are now being prepared to commence with the new academic year.

Early in January seventy monkeys of the Santiago Primate Colony were brought to the School and examined for the presence of hemolytic streptococci in their throats. During the period of 1938-1943 studies have been made on the hemolytic streptococci isolated from the throats of normal rhesus monkeys.

In studies of the Brucella group, the precipitin reaction is being utilized in an attempt to develop a rapid and reliable method for differentiating *Br. abortus* and *Br. melitensis*. The studies on streptococcal hemolysin are in progress, and about two hundred sera have been tested with both group A and group C hemolysis. Studies concerning the antibody response to streptococcus infection in monkeys have been initiated. At present response to throat infection is being investigated.

The studies on dysentery have continued and in the October, 1942, issue of the *Proceedings of the Society for Experimental Biology and Medicine* the Department published a preliminary report on a rapid method for the classification of races of the Flexner group of dysentery bacilli. The method used shows great promise for the study of the dysentery group as a whole; hence the efforts of those members of the Department engaged in this work are directed to a more detailed and extensive study of all dysentery bacilli.

Studies on experimental leprosy have continued. The laboratory coöperated with poultry farmers who were suffering heavy losses from an unexplained edema amongst their newly hatched chicks, resulting from the use of a local feed. The deficiencies in this feed are now being investigated with the help of the Department of Chemistry.

With the coöperation of Professor Hoffman, of the Department of Parasitology, investigations in experimental schistosomiasis, concerned chiefly with the absorption of schistosomal ova, have been under way.

In the Department of Chemistry, of which Professor Cook<sup>4</sup> is in charge, studies on native oils in collaboration with the Agricultural Experiment Station of the University of Puerto Rico have been carried on through the year. Studies on the "Maya" have also been carried on with the Experimental Station and they have developed a new and better procedure for obtaining the crude enzyme. Several trials have been carried out on puppies infected with ascaris and hookworm to determine whether pinguinain has an anthelmintic action *in vivo*, as well as *in vitro*, on parasites.

Studies of botanical drugs, in collaboration with the Agricultural Experimental Station of the University of Puerto Rico, have resulted in several contributions of promise. Dr. Marianne Goetsch has continued her active investigations in nutrition with particular reference to vitamin E.

In the Department of Dermatology and Mycology under the direction of Professor Arturo L. Carrión, study of the dermatomycoses in Puerto Rico has been continued. Observations were made on ringworm of the scalp, and six new cases were added during the year. Material from twenty-eight patients with pulmonary infections of obscure etiology has been examined to determine the possible presence of fungus pathogens. Yeastlike organisms were cultures in six of the cases.

During the year five fungi, isolated from cases of chromoblastomycosis in different parts of the world, have been referred to the Department for study. Since the Department reported its first case of *mal del pinto* in Puerto Rico in 1941, earnest efforts have been made to locate new cases with a view towards determining its epidemiology and obtaining additional information about a disease that is now attracting the attention of many investigators. A second case of *mal del pinto*, recently encountered in Vega Alta and referred to the Department by Dr. E. N. Bocanegra López, is now under study.

During the past year members of the Department of Clinical Medicine, under the direction of Dr. Ramón M. Suárez, have continued the projects already under way and have commenced others, perhaps the most important being the study of the clinical aspects of nutrition in Puerto Rico. For this purpose the Department has acquired a biophotometer for the determination of dark adaptation in relation to vitamin A. More than 500 subjects have been tested to date.

On September 1, 1942, Dr. Hazel E. Munsell was appointed Research

Associate in the Department for work on the quantitative determination of vitamin content by chemical methods. The study of the vitamin C content of orange juice has been continued through analyses made on at least one sample each week with a view to detecting any evidence of seasonal variation in samples purchased on the market. Plans are to complete the study on citrus fruits.

Another project continued with great interest was that on bone marrow changes in tropical diseases. For obvious reasons there has been difficulty in obtaining German dyes, and so, following Dr. Schleicher's method, some bone marrow slides were stained with domestic Wright's stain. Although this method has been tried only recently, it has proved rather successful and will be followed in the future.

The work on sprue has been intensified, extensive gastroscopic and rectosigmoidoscopic studies have been performed. One of the most interesting observations coming out of this study is the maintenance of a flat glucose tolerance curve after the patient has recovered clinically and hematologically from the disease.

In the study of schistosomiasis, several cases exhibiting pulmonary and cardiac pathology, probably secondary to this parasitic condition but which had never before been encountered clinically in Puerto Rico, were studied. A few reports of findings of this nature have been available from Egypt.

Studies on lymphangitis were continued. The hematological and chemical changes in this disease condition were extensively studied. In corroboration of recent work it was determined that the microfilariae do not usually appear in the bone marrow during the daytime. A certain group of patients are now under treatment with a filtrate prepared by the Department of Bacteriology and a few are taking weekly doses of one of the sulfonamides.

The study of liver function tests were continued and herein the Hanger Cephalin Test has proved very reliable as an index of hepatic damage.

The Division of Surgery has been conducting its studies on diseases of the peripheral vascular system, diseases of the thyroid gland, and surgical aspects of lymphogranuloma inguinale.

The Division of Pediatrics continued to study the nutritional deficiency diseases and the dysenteries but now plans to give most of its time to the study of tropical disorders.

A total of 3,647 persons volunteered donations during the first year of life of the Blood Bank of the Civilian Defense, established in the School and functioning under its auspices with an average of ten donors a day. The Blood Bank is under the direction of Dr. Eduardo Montilla.

During its first year of operation, the Blood Bank has given service to the hospitals of the Island in 731 transfusions, nearly all of them during holidays and after regular working hours when it would have been otherwise difficult, and at times impossible, for these institutions to obtain suitable donors. This

type of service, in addition to plasma production, may justify the continuation of the Blood Bank as a permanent institution after the war is over. Hospitals are charged twice the amount of whole blood withdrawn in exchange for this transfusion service.

Dr. Gonzalez served as Research Associate in the Department of Bacteriology and Parasitology, University of Chicago, during 1941-42, and coöperated with Dr. W. H. Taliaferro, head of that department, in investigations on cellular reactions to infections with the parasitic nematodes. He also engaged in other problems of immunity to helminth infections. With Dr. G. W. Wright, as senior investigator, a short study on the localization of the *Trichinella* antibody with the Thessalius apparatus was completed and submitted for publication.

On his return to Puerto Rico and with the assistance of Miss Josefina Acosta, Dr. Gonzalez continued his studies on immunity to *Ascaris*. Investigations on the immunological relationships between *Ascaris lumbricoides* of man and *Ascaris suum* or the pig are well under way. Studies on the serological diagnosis of *Ascaris* in rabbits give indications of considerable promise.

Dr. Gonzalez and Mr. José T. Maldonado, also of the Department, completed a filaria survey at the Insular Home for Girls. Positive cases will serve for future studies on the immunological aspects of infection with *Wuchereria bancrofti*. Mr. Maldonado's research on the biology of the cat liver fluke has progressed to the point where he has definitely demonstrated that a common land snail serves as the intermediate host.

A method for isolating and concentrating large numbers of schistosome ova from heavily infected livers, which may make possible a continuation of the study of the destruction of schistosome eggs, has just been developed. Some progress has also been effected in more efficient concentration of schistosome eggs.

Professor Hoffman has devoted considerable time to the identification of biting gnats of the genus *Culicoides* for naval medical authorities attempting to control these pests in Panama; one to two thousand specimens for Cornell University, and for Dr. Luis Mazzotti, of Mexico, in connection with his filarial investigations.

About a year ago Dr. Henry D. Pratt, of the United States Public Health Service, and Professor Hoffman inaugurated a coöperative project designed towards the preparation of a monograph on the mosquito in Puerto Rico. The importance of this work is obvious.

Respectfully submitted,

WILLARD C. RAPPEYE, M.D.

June 30, 1943

Dean

PROFESSIONAL STAFF ON LEAVE FOR MILITARY SERVICE  
IN 1942-43

*ADMINISTRATION*

Vernon W. Lippard

*ANATOMY*

Julius K. Littman

*BACTERIOLOGY*

Norman Molomut

Murray Sanders

*BIOCHEMISTRY*

None

*CANCER RESEARCH*

Milton J. Eisen

*DELAMAR INSTITUTE OF  
PUBLIC HEALTH*

Bernard M. Blum

Elias Strauss

Stafford M. Wheeler

*DERMATOLOGY*

J. Malcolm Bazemore

Robert R. M. McLaughlin

*MEDICINE*

George Baehr

Frederick R. Bailey

Otto S. Baum

Stuart S. Blauner

Daniel N. Brown

Norton S. Brown

Howard G. Bruenn

Joseph B. Brune

George A. Carden, Jr.

Henry A. Carr

Henry P. Colmore

Crispin Cooke

John K. Curtis

C. Dary Dunham

Shirley C. Fisk

Charles A. Flood

Julian M. Freston

Charles L. Gilbert

William H. Gillespie

Thomas J. Gleeson

J. A. Clinton Gray

Frederick K. Heath

John L. Kantor

Yale Kneeland, Jr.

Herman Lande

Michael J. Lepore

James Liebmman

Putnam C. Lloyd

Thomas T. Mackie

Arthur M. Master

Joseph H. Minden

David D. Moore

Norman W. Osher

Allen A. Parry

Joseph Post

William D. Province

Charles A. Ragan, Jr.

Rowland Richards

John L. Riker

Theodore B. Russell

Albert C. Santy

Paul B. Sheldon

William B. Sherman

DeWitt Hendee Smith

William H. Stearns

Alfred Steiner

Herman Tarnower

Joseph C. Turner

T. Lloyd Tyson

Chester H. Whitney

Herbert B. Wilcox, Jr.

Carl R. Wise

*NEUROLOGY*

Ben H. Balser  
Norman Q. Brill  
Fritz Cramer  
Stanley M. Dillenberg  
Henry H. Drewry  
Leon W. Goldensohn  
Desiderius Groszberg  
Clarence C. Hare  
Warren V. Huber  
Walter O. Klingman  
Charles A. McKendree  
John M. McKinney  
Rollo J. Masselink  
James L. Pool  
Leo Rangell  
Albert A. Rosner  
John E. Scharff  
Carmine T. Vicale  
Henry Wigderson  
Alexander Wolf

*NURSING*

Dorothy K. Hagner  
Isabel G. Harrell  
Ella Kauffman  
Jessie M. A. Mutch  
Marjorie Peto  
Delphine F. Wilde

*OBSTETRICS AND  
GYNECOLOGY*

John H. Boyd  
Charles Lee Buxton  
Eugene S. Coler  
John C. Kilroe  
James R. Montgomery  
Clinton P. O'Connell  
William E. Pollard  
John B. Rearden  
Alvin J. B. Tillman  
Leo Wilson

*OPHTHALMOLOGY*

C. Gregory Barer  
James Boyd  
Gordon M. Bruce  
A. Gerard DeVoe  
J. Vincent Flack  
Edward Gallardo  
William H. Hanna  
John P. Macnie  
Phillips Thygeson  
Donald E. Tinkess

*OTOLARYNGOLOGY*

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Daniel C. Baker, Jr.  
Edwin B. Bilchick  
Arthur J. Cracovaner  
Sylvester Daly  
Edmund P. Fowler, Jr.  
Robert H. Fowler  
Martin A. Furman  
Fred J. Hunter, Jr.  
Robert L. McCollom  
Bela Marquit  
Page Northington  
George O'Kane  
Lee R. Pierce

*PATHOLOGY*

Robert A. Kritzler  
Hans Smetana

*PEDIATRICS*

George B. Bader  
John M. Brush  
Sidney S. Chipman  
Harold W. K. Dargeon  
John R. Gilmour  
David M. Greeley  
Richard G. Hodges  
Robert E. Jennings  
Gilbert M. Jorgensen

Samuel Karelitz  
 James H. Maroney  
 S. Dow Mills  
 Ralph E. Moloshok  
 Milton Singer  
 Daniel A. Wilcox  
 Charles L. Wood

### *PHARMACOLOGY*

Solomon Disick,  
 Alan Leslie  
 Clifford L. Spingarn

### *PHYSIOLOGY*

Harold A. Abramson  
 Octa C. Leigh, Jr.

### *PSYCHIATRY*

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 Walter Briehl  
 George A. Jervis  
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 John P. Lambert  
 William S. Langford  
 Reginald S. Lourie  
 Lewis I. Sharp  
 Stephen M. Smith  
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 Giles W. Thomas

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### *SCHOOL OF TROPICAL MEDICINE*

Alberto Díaz Atilés  
 R. Rodríguez Molina

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Erwin Brand (Biochemistry)  
 Kenneth Cole (Physiology)

Howard J. Curtis (Physiology)  
Richard L. Day (Pediatrics)  
J. Gardner Hopkins (Dermatology)  
Elvin A. Kabat (Biochemistry)  
Eleanor Lee (Nursing)  
Aildred A. Macdonald (Pediatrics)

Howard Shookhoff (Medicine)  
Hamilton Southworth (Medicine)  
Ernest L. Stebbins (Public Health)  
Kenneth B. Turner (Medicine)  
Judah Zizmor (Medicine)



# Columbia University

IN THE CITY OF NEW YORK

## Report of the Dean of the School of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1944



COLUMBIA-PRESBYTERIAN MEDICAL CENTER

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# SCHOOL OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1944

*To the President of the University*

SIR:

I have the honor to submit the annual report of the activities of the School of Medicine for the academic year 1943-44. Due to the accelerated program, the degree of Doctor of Medicine was awarded on December 23, 1943, and students were admitted to a beginning class on January 3, 1944.

For the period July 1 to December 23, 1944, 463 students were enrolled in the regular course of instruction for the degree of Doctor of Medicine, distributed as follows:

First year . . . . .	118
Second year . . . . .	113
Third year . . . . .	124
Fourth year . . . . .	108

At the close of that period 107 students were awarded the degree of Doctor of Medicine.

On January 3, 1944, a new class was admitted and the enrollment for the period January 3 to June 30, 1944, was 472, distributed as follows:

First year . . . . .	121
Second year . . . . .	110
Third year . . . . .	118
Fourth year . . . . .	123

There were 1,686 applicants for admission for the class beginning January 3. The students had prepared in 212 different colleges and universities. The class admitted January 3 had prepared in thirty-four colleges. The graduating class of December 23, 1943, obtained internships in forty-two different hospitals in all sections of the country. Forty-six students who were registered under the Graduate Faculties of the University took their work at the Medical School during the year. Instruction in the medical sciences was provided as usual for the students of the School of Dental

and Oral Surgery. Seventeen students were enrolled in the DeLamar Institute of Public Health. The February registration in the Department of Nursing was as follows:

First year . . . . .	143
Second year . . . . .	115
Third year . . . . .	83
<hr/>	
Total . . . . .	341

There were awarded, in addition to the degrees of Doctor of Medicine, fifteen of Master of Science in public health, forty-one of Bachelor of Science (nursing), and four of Doctor of Medical Science.

We report with profound sorrow the death of Mr. Dean Sage, President of the Boards of Managers of the Presbyterian Hospital and the Babies Hospital and the Board of Directors of the Neurological Institute. The Medical Center is in no small degree a monument to his vision, his courage, and his wisdom. The professional staff of the hospitals and the Medical School, as well as future generations of students, will always be deeply indebted to him.

It is with regret, also, that we announce the death of Professor Haig H. Kasabach of the Department of Radiology, whose interest in activities and teaching of students as well as care of patients will long be remembered.

Among the numerous gifts to the Medical School during the year, special comment should be made on the grant of \$400,000 from the Bernard M. Baruch Committee on Physical Medicine. The greatly increased importance of this phase of medicine in rehabilitation of ex-service men and injured or otherwise incapacitated civilians constitutes a major challenge. Relatively little is known as yet about the fundamental mechanisms of physical medicine, and the grant has been given primarily for research in physiological and biophysical action of physical agents. It is greatly to be hoped that the fundamental research and training programs envisioned may make important contributions to our knowledge and to the adequate preparation of workers in these fields.

Dr. J. Frederick Eagle, who was graduated in December, 1943, was the recipient of the Dr. William Perry Watson Prize, awarded to the mem-

ber of the graduating class who shows the most efficient work in the study of the diseases of infants and children during the medical course. The Janeway Prize, given each year to the graduate who, in the opinion of the Faculty, has ranked highest in efficiency and ability, was awarded to Dr. Gilbert H. Glaser. Mr. George Nichols, Jr., of the second-year class, was awarded the Dr. Harold Lee Meierhof Prize for outstanding work during the year in the field of pathology.

Due to the Army Specialized Training Program and the Navy College Training Program, there was less need for scholarship aid the past year. An average grant of \$410 was made to twenty-five students. These awards were made to women students and men students who were not physically qualified for the Army and Navy training programs and who under ordinary circumstances would work during their vacation periods but were unable to do so due to the accelerated program.

Dr. George A. Perera, physician in charge of the Student Health Service, reports that the over-all activities of the Student Health Service have been greatly altered during the past year by the additional requirements of the Army and Navy training programs, which began in July, 1943, and by specific epidemiological problems. The total medical and dental student body is 670.

The total number of consultations has been doubled this year. The total number of Clinic visits increased from 1,122 to 1,860. The number of students hospitalized more than doubled and those admitted to the overnight ward increased from 23 to 123. This large increase has been explained by Dr. Perera as evidence of the demands of the accelerated schedule and military exercises, the requirements of the Army and Navy to report all minor illnesses, and the general stress of the war period. Dr. Perera's recommendations are being studied, and it is planned that certain changes will be made to better meet the needs of the students and to aid the physician in charge of the Student Health Service.

During the past year, postgraduate courses were given to 1,324 physicians, including about 250 Army officers. The enrollment of civilian physicians was as follows:

Bellevue Hospital . . . . .	17
Margaret Hague Maternity Hospital . . . . .	6
Montefiore Hospital . . . . .	40

Mount Sinai Hospital . . . . .	184
New York Eye and Ear Infirmary . . . . .	97
New York Post-Graduate Medical School . . . . .	703
Presbyterian Hospital and Medical School . . . . .	277

In addition to the postgraduate courses listed above, instruction for residents in affiliated hospitals was provided for:

Anatomy of Sinuses . . . . .	11
Dissection of Head and Neck . . . . .	21
Embryological Development of Nasal Cavities and Sinuses . . . . .	11
Histopathology of Nose and Throat . . . . .	8
Histopathology of the Ear . . . . .	9
Histopathology of the Eye . . . . .	9
Surgical Anatomy of Temporal Bone . . . . .	10

Eight candidates were registered for the degree of Med.Sc.D. in the graduate program, and four degrees were awarded.

The Post-Graduate Medical School offers a wide variety of short "refresher" courses of two distinct types—courses for general practitioners and advanced courses for qualified specialists. The largest number of courses for general practitioners are offered in the field of internal medicine, gynecology, and pediatrics.

Appended to this report is a list by departments of members of the School staff who are in the armed services or engaged in special assignments outside the University. These colleagues are making important contributions and taking an active part in the war in every theater of operation. We all are proud of their achievements and look forward eagerly to their early return.

#### FUTURE NEEDS OF THE MEDICAL CENTER

During the year the Faculty and Medical Board of the hospitals at the Center have given much time and study to the future needs of the Medical Center. The importance of making plans now for its over-all development in the light of growing opportunities for medical education, research, and public service suggests a restudy and such amplification as may be warranted of the recommendations made jointly in 1937 by the Faculty of Medicine of the University and the Medical Boards of the

Hospitals. The decision of the New York Orthopaedic Dispensary and Hospital to move to the Center and the need of expanding present facilities in anticipation of the return from the military services of members of the staff require immediate consideration of this program.

It is gratifying to record the substantial progress that has been made since the Recommendations of 1937. The integration of the program of the Neurological Institute with the other hospital units has been accomplished. Effective January 1, 1944, all the voluntary hospitals at the Center were merged into a single corporate organization. The plan of centralizing all the teaching and research activities and most of the diagnostic services under the University has gone forward satisfactorily. The development of nursing education under University direction in close coöperation with the hospitals has created a strong program which can now be expanded into much-needed graduate instruction in this professional field. The Washington Heights District Health Center and the strengthening of teaching and research in public health have laid the foundations for a unit of national importance. The recent additions of personnel and financial aid from the Josiah Macy, Jr., Foundation, for tropical medicine, give impetus to this highly important subject.

There is no change from the expression of the staffs in 1937 that the Medical Center should not be expanded beyond a size necessary to carry out the functions originally planned for undergraduate instruction of approximately 100 medical and fifty dental students per class, together with the development and demonstration of sound graduate instruction in the clinical and related specialties. The utilization of affiliated hospitals for both undergraduate and graduate medical education has worked out satisfactorily. The graduate plan conforms to the most progressive thinking and practical method of conducting advanced professional education and is possible in large degree because of the laboratories for graduate medicine given to the institution in 1936 by the Commonwealth Fund and the Martha M. Hall Foundation.

There is need for increased ward services for medicine in order more effectively to conduct the teaching in the undergraduate medical course. The Department of Medicine has the heaviest responsibilities of any department in the instruction of students. The present medical service in the Presbyterian Hospital is inadequate for proper teaching and super-

vised experience for the student body of 100 per class. It has been possible to provide satisfactory instruction only by utilizing the present service and staff through the summer vacation periods when about one fourth of the students obtain their basic third-year clinical clerkship. Any program contemplated should, if possible, bring the medical service into more satisfactory balance with its responsibilities.

The need of a proper dermatological service has been discussed for many years. At present, only a few beds on the medical wards are available. There is a large ambulatory dermatological service in the Vanderbilt Clinic. Sufficient hospital beds are not available to care for the patients needing hospitalization. An adequate dermatological service requires special equipment and to function properly should be set up as a separate service. It is estimated that twenty to twenty-five beds would adequately cover the needs of dermatology.

The future will bring demands upon medicine which today cannot be visualized. The "F" Floor in Presbyterian Hospital, now used for housing personnel, should not be assigned for any permanent service at this time, but should remain available for future needs. The importance of tropical diseases following the war and probably for many years may be cited as an example of future needs. The Center should make plans for the proper care, study, and teaching in this group of disorders.

The Recommendations in 1937 included facilities for teaching and research in up-to-date methods of diagnosis, treatment, and prevention of diseases of the locomotor system. The war has accentuated the urgent need of better training as well as specialized skills in medicine, surgery, nursing, physical therapy, and occupational therapy as related to the disorders and injuries of the bones and joints. Since about 70 percent of battle injuries involve the extremities, war casualties force early attention to this particular group of problems. The large number of injuries in war industries makes the question of prime importance in the civilian war effort and in the industrial activities of the future. The close relationship of arthritis, one of the greatest causes of crippling and incapacity in this country, to other disorders of the joints indicates the need for sound medical as well as surgical therapy.

At the beginning of the present century, orthopedic surgery was devoted essentially to children afflicted with congenital and acquired



deformities or chronic infections such as tuberculosis of the spine or extremities. As a rule, their treatment was by braces or plaster casts. The field has now broadened to include all age groups. Bone and joint tuberculosis and the deformities due to rickets and poliomyelitis have become less prevalent with earlier diagnosis and preventive treatment, but the number of spine and joint disabilities among adults has increased.

In recent years there has been a marked trend toward the handling by the orthopedists of the acute infections, neoplasms, and traumatic conditions of bones and joints. The method of treatment today is the application of general surgical methods and techniques to these problems of the locomotor system. Traumatic conditions of the extremities are becoming less and less the problem of the general surgeon and are being dealt with either in special fracture wards or on orthopedic services.

Orthopedic surgery as now understood by leaders in the field should be included in the comprehensive program of the Medical Center. The Presbyterian Hospital is making plans to provide for such an addition to its functions. The New York Orthopaedic Dispensary and Hospital has decided to move to the Center in order more effectively to carry out its educational, research, and hospital services.

The present fracture service at the Presbyterian Hospital deals with traumatic conditions as well as with many of the neoplasms and infections, both acute and chronic. The planned orthopedic service will deal chiefly with deformities, chronic infections, and other disabilities, but will also meet with problems similar to those on the fracture service. Both groups will deal with surgical conditions of the same system, and the staffs require similar training in the principles of general surgery. It seems wise to combine these two groups as soon as possible into a single orthopedic department responsible for the diagnosis and treatment of all the diseases which belong properly to this field of practice.

In view of the considerations just cited, it has been recommended that the University combine the present fracture subdivision of the Department of Surgery and the present Department of Orthopedic Surgery into a new Department of Orthopedic Surgery under a single executive officer. It has also been recommended to the Presbyterian Hospital through the Planning Committee of the Medical Board that a single orthopedic service of approximately fifty adult and twenty-five children's

beds for orthopedics, and approximately thirty beds for fractures, be created.

It has been suggested that sufficient facilities in the Presbyterian Hospital be made available for adult orthopedics and that, if possible, the fracture unit be combined with it; also, that the orthopedic service for children be housed in the Babies Hospital on the floor corresponding with that in Presbyterian Hospital, providing that can be done without interference with provisions for additional low-priced private rooms for children and other needed facilities in the Babies Hospital. It will be necessary to extend the Vanderbilt Clinic to take care of an expanded outpatient service for orthopedics and to include in the expansion of Harkness Pavilion about fifty high- and low-priced rooms for private patients with orthopedic conditions, as well as offices for the staff in orthopedic surgery. A survey of the Babies Hospital would seem to indicate that a proper rearrangement of space will provide all the facilities which are desired, including the twenty-five orthopedic and five fracture beds for children.

Another development of special significance accentuated by the war casualties is plastic surgery. The staff has developed a group of experts in this field who are known everywhere for their skill and contributions. The courses in plastic surgery offered during the past year for Army medical officers have attracted wide and favorable official recognition. A peculiar opportunity is afforded to contribute to this important newer field of surgery, which has the most profound implications in the lives of those who are disfigured from war injuries, burns, deformities, civilian injuries, congenital defects, tumors, or other causes. If the fracture service is combined with orthopedics, the present beds now devoted to fractures would be available for plastic surgery.

Rapid developments are occurring in thoracic surgery also. The staff includes several men who are making noteworthy contributions in this field. The demands for proper facilities for the care and treatment of patients with diseases requiring this type of treatment are increasing. With the contemplated assignment of semiprivate rooms to the ward services, a small unit in thoracic surgery can be created.

As emphasized in the Report of 1937, "there is need at the Center for facilities for the care of those of the hospital staff and their families who

may be ill from one of the communicable diseases. There are now no satisfactory provisions in New York City for private patients with contagious diseases." It had earlier been intimated that New York City might build near the Center a hospital for contagious diseases, which would serve the needs satisfactorily. Plans have now been developed to include such a unit in the proposed new City hospital for tropical and communicable diseases which, it is contemplated, will be erected on property along Riverside Drive which the University and Presbyterian Hospital have been asked to transfer to the City of New York for the purpose.

There is general agreement that tropical diseases constitute one of the major problems of the war and promise to become a world-wide challenge for an indefinite period following the end of hostilities. The widespread incidence of these disorders among the armed forces and the probability of their increasing greatly among civilians later through commercial contacts, shipping, and travel are fully recognized. Important ports of entry such as New York are particularly likely to need facilities and resources to deal with the problems that will arise. It is entirely logical that in New York City there should be for the care and study of tropical diseases facilities and a staff of experts of even greater importance than in the earlier centers in Hamburg, London, and Liverpool.

A second consideration of great importance, which fortunately can be readily combined with a project in tropical diseases, is that of the adequate graduate training of health officers and the promotion of research in a wide range of public health problems. The Department of Health of New York City has its excellent laboratories, and recently the Public Health Research Institute of the City of New York, Inc., was created, financed by City and outside funds. The erection of the Washington Heights District Health Center and its joint operation by the City and the University has led to one of the important teaching-research programs in public health work of the country.

For several years, discussions have been held between the City, Columbia University, and the Presbyterian Hospital on the feasibility of a joint program in public health teaching and research, the care and treatment of contagious diseases in this area of the City, and, more recently, in the creation of a much-needed unit for the treatment and study of tropical

diseases in which adequate training of physicians and other health workers in this field of medicine can be provided.

On May 12, 1944, a conference was held in which representatives of the City Planning Commission, the City Departments of Health, Hospitals, and Public Works, and the University participated. The City of New York is prepared to go forward under authority of the Mayor and the Board of Estimate with preliminary plans for a joint undertaking at the Medical Center. The project would include the Public Health Research Institute, the laboratories of the Department of Health, facilities for the instruction of public health officers and for research in this important field of medicine, a hospital of about 350 beds for tropical diseases with flexible arrangements to accommodate a unit for communicable diseases. Both hospital units are needed by the Medical Center as essential parts of its long-term program. Under an agreement with the City, the staff of the hospital would be nominated by the University in a manner similar to the appointments to the staff of the Florence Nightingale Hospital.

The Faculty of Medicine is of the opinion that such a development in tropical medicine, contagious diseases, and public health instruction and research as described would provide in New York City one of the greatest centers of its kind in the world. The Committee on Administration recommended to the Trustees adoption of the joint program with the City of New York in tropical medicine, contagious diseases, and public health as tentatively outlined if the necessary arrangements with the Presbyterian Hospital and the City of New York can be worked out.

Anticipation of the needs of our staff when they return from military service is urgent. It will be necessary, particularly, to provide additional low-priced hospital rooms and office accommodations for their patients in order that, as far as possible, the staff may concentrate their professional activities in the wards, laboratories, offices, and private facilities at the Center. These men include many excellent teachers and investigators. They constitute, to a large extent, the future source of supply of our staff. The obligations felt toward these colleagues are fully recognized by everyone in the Hospital and the University. These accommodations are provided for in the proposed enlargement of Harkness Pavilion.

Since the Memoranda of 1937, the City of New York, in coöperation with the Presbyterian Hospital and the University, has begun construc-

tion of the Florence Nightingale Hospital on the South Property. This institution, when completed, will provide excellent opportunities for research and therapy in all phases of malignancy. It should provide a great asset to the community, the hospitals, and the Medical School.

The growing importance of dentistry in many phases of health and medical services is leading properly to specialization and closer coöperation in many medical and surgical problems. It is clear that added facilities are needed to carry these plans forward. The extension of the Vanderbilt Clinic to Broadway should, if possible, be run up to the full eight floors, thus allowing the expansion of the dental school and clinics on the three top floors.

The relationships of public health research and teaching for students in medicine, nursing, dentistry, and public health fields require an increase in our present facilities and resources. The joint undertaking with the City New York described above would provide the necessary facilities.

A special study of the problems of nursing education has been made. It is the opinion of those responsible for this part of the Medical Center program that the most effective educational plan requires that the enrollment of undergraduate student nurses should be limited to 110 students in the first-year class and 100 in each succeeding class. This number of undergraduate nurses, together with the necessary number of supervisors, can, at present, be housed in Maxwell Hall. For years the Center has had affiliate undergraduate students from other schools. In so far as housing and supervision go these students are no different than our own. Up to the present time there have been approximately 115 of these affiliates. It is contemplated that in the future the total will not exceed 120. It should be pointed out that these affiliates, who are at the Center for twelve weeks, play a most important part in manning the services to which they are assigned.

Instead of having 310 to 330 undergraduate nurses, we are really obligated to house and supervise 430 to 450. This number cannot be adequately cared for under present conditions. Furthermore, they are occupying space designed and needed for hospital purposes. There is an obvious need for additional housing facilities for undergraduate and affiliating nurses.

The need of well-organized graduate training in specialized fields of nursing is now clearly recognized. Such a program should parallel the graduate training in the medical specialties by the creation of about fifty nursing residencies in obstetrics, pediatrics, orthopedics, otolaryngology, neurology, medicine, surgery, dermatology, urology, and ophthalmology. This proposal, if carried out, would bring many benefits to the hospitals and at the same time require consideration in the plans for housing hospital personnel.

It is generally agreed that, apart from the resident and intern staff, the only housing of personnel in the hospital buildings should be the following:

- (a) Essential people who are on call for the proper functioning of the hospitals.
- (b) Nurses who have just graduated and who need six months or more to find out what they are best fitted for. These will be general-duty nurses and others who for one reason or another cannot find or afford outside accommodations at once.
- (c) Valuable general-duty nurses who wish to live in.
- (d) The fifty nursing residencies to which reference has been made above.

It is estimated that the four groups would total 150 to 200 people. Graduate housing requires more space and different types of accommodations than does undergraduate housing. If the whole graduate housing program were to be carried out, it would appear to necessitate a separate building.

An intramural convalescent building would be of advantage in facilitating ward care and in reducing ward costs, but there is no agreement that such a unit should be built at the Center.

The new additions to the Medical Center during recent years and the plans for the predictable future contemplate larger research and hospital staffs whose activities cannot be carried out satisfactorily without increased laboratory and library facilities and personnel. The present Library is quite insufficient for even the current needs. Any plan for the future must envisage a substantial increase in space, reading and special reference cubicles, stack rooms, and the other adjuncts of a modern library. Likewise, it will be necessary to increase the laboratory facilities

and workers in order to provide more diagnostic, and particularly for the increasing demands of therapeutic, laboratory determinations and expanding research.

In the over-all planning sufficient storage and ancillary space should be provided for the multiplying activities, and among other things the hospital laundry might be removed from its present position in the very center of the Medical School.

In keeping with this supplement to the "Review of the Program of the Medical Center" made in 1937, the following recommendations for the ultimate development of the Center have been made, each item to be considered and passed upon individually. The estimated capital expenditure and cost of operation of each have been prepared.

1. Enlargement of Harkness Pavilion
2. Combined orthopedic and fracture service
3. Dermatological service
4. Plastic surgery service
5. Housing for undergraduate nurses
6. Housing for graduate nurses
7. Expansion of operating rooms (Floor P)
8. X-ray expansion (Floor C)
9. Additional elevator service
10. Increased dining room and kitchen facilities
11. Miscellaneous alterations and storage space
12. Enlargement of Vanderbilt Clinic
13. Alterations to Babies Hospital
14. Alterations to Eye Institute
15. Alterations to Neurological Institute
16. Expansion of Dental School
17. Facilities for tropical and communicable diseases
18. Increased facilities for public health teaching and research
19. Additional library facilities
20. Additional diagnostic and therapeutic laboratories
21. Intramural convalescent hospital

#### POSTWAR MEDICAL EDUCATION

One of the most important national problems of the postwar period will be that of providing educational opportunities for medical officers when they are discharged from the military services. Plans should be made now in order to give assurance to the men at present or shortly to

be in the services that opportunities will be provided for them later and also to encourage the educational institutions and hospitals to proceed with arrangements to meet this opportunity.

There will be two main categories of discharged medical officers for whom plans should be made. The first includes those whose normal program of medical education and hospital training has been abbreviated or partially interrupted by the war. The second group embraces those physicians called from established practices who will need intensive short refresher courses to prepare them to return again to civilian life. Many of these men will have had in their military service little that is of value in maintaining skill or knowledge in their previous field of practice.

The solution for the first group will be through hospital residencies and fellowships in institutions capable of providing satisfactory training. Programs of this kind were well established in certain institutions before the war and are being retained in essential form through the emergency. They consist of a continuation of residencies on specialized hospital services and advanced instruction in the medical sciences concerned as outlined by the Advisory Board for Medical Specialties and certain universities.

The medical officers of the first group will on discharge seek hospital posts for periods of approximately one to three years. The demand from the young medical officers will obviously be urgent. The number of such educational opportunities will have to be greatly increased, although not to the number which will result in lowering of the standards of training. Many hospitals now have affiliations with medical schools to provide the training in the basic sciences, but more such arrangements should be worked out promptly in order to prepare for the increased demands following the war. Particularly will it be necessary for medical schools to formulate or augment existing programs in the basic sciences to provide instruction for periods of six to twelve months in association with the residencies in order that this phase of graduate medical education be covered adequately.

In regard to the financial implications, the medical officers will be eligible for mustering-out pay, tuition expenses, and a modest maintenance allowance as contemplated in the educational and rehabilitation



bill passed by the Congress, if they qualify for the benefits. A sound plan of instruction for these men includes further education in the basic sciences so necessary in advanced training and especially needed by most of the younger physicians in the services. The graduate program of the University formulated in 1932 was planned to meet just these responsibilities.

The members of the second group particularly require short refresher courses designed for those who before the war were already established in practice either as qualified specialists or as general practitioners. Courses of less formal instruction for these two types of practitioners should be separate and adapted to their respective needs. Many in both groups should have intensive instruction in recent developments in medical science and practice before they return to their civilian responsibilities. Most of such courses should be from thirty to ninety days in length, some longer, and can be largely self-supporting. Although the instruction should be largely clinical in the hospital wards and outpatient departments, central direction by an educational institution is highly desirable. Fortunately, this University and its affiliated hospitals are well prepared to meet these new demands. Over 200 short intensive postgraduate courses for physicians and discharged medical officers are already organized and available.

Another problem of great urgency is the re-establishment as promptly as possible of a level of premedical college preparation required by modern medical instruction. Previous to the war, about 98 percent of medical students in this country had had three years of college education and 76 percent possessed an academic degree. The present preparation of only fifteen months prescribed by the Army Specialized Training Program, for example, is insufficient. The medical schools are coöperating fully with the government in the abbreviated and accelerated programs as a war measure, but everyone familiar with the situation is agreed that an early return to proper standards is highly desirable in the national interest. Plans will have to be formulated to carry through the transition of several years following the end of hostilities. The implications in relation to the laws of the forty-eight states for licensure to practice, the adjustments in college curricula to meet the irregular earlier preparation of many of the men and the uneven dates of their discharge from the

military services for several years after the end of the war, and, possibly, new techniques in their selection for medical studies, as examples, will have to be studied.

A third problem will be the necessary adjustments in the medical course itself. Specialization required by present-day practice for a growing proportion of the population leads increasingly to group practice and an extension to every section of the country of adequate hospital, laboratory, nursing, dietary, and other essential health services. The hospital is everywhere recognized as the essential nucleus of practice for many illnesses and for many medical services—and often the vehicle of obtaining for local communities the highest quality of recent medical graduates. Young doctors trained in teaching-hospital centers seek opportunities where they can practice what and how they have been taught.

Associated with the changes in medical care for the population arising out of developments in the science of medicine itself are the influences of broad social and economic factors which require adequate presentation in medical education. It is most important, therefore, that the professional education be permeated with an understanding and presentation of the basic social and economic problems and trends with which medicine is expected to deal and which also are likely to modify if not determine the forms and opportunities of practice in the future.

A fourth problem is the revision of the curriculum itself and the adaptation of its content to the new demands. Emphasis upon disease prevention and control as well as upon early diagnosis and appropriate treatment is permeating all fields of instruction. The medical, legal, and economic implications of the mental disorders need to be more fully presented to students. The wide range of functional nervous disorders should receive deserved attention. It is apparent that in response to recent world events, changes in the composition of the population, the control and treatment of communicable diseases, and recent discoveries, more emphasis than heretofore should be placed upon parasitology, the medical and health problems of the tropics, chemotherapy, the special diseases of adult and old age, biophysics, genetics, industrial medicine, legal medicine, the care and treatment of trauma (especially burns, injuries, and shock), nutrition, the correction of physical defects, the maintenance of physical and mental fitness, aviation physiology, and the broad range

of environmental factors in health as well as in disease. It will not be possible nor desirable merely to add these and other new topics to the old curriculum. The whole structure of medical instruction must be re-examined in the light of present-day requirements. In many instances existing departments and programs will have to reorganized and vitalized.

The Faculty of Medicine is fully prepared to cope with these and related problems. It looks forward eagerly to the return of its many members who are now in the services and to the challenging opportunities of the future.

Despite the sharp reduction in the departmental staffs and the greatly increased burden of teaching and clinical responsibilities in the hospitals and outpatient services, the instruction of medical students has been maintained at a reasonably satisfactory level, although below that of peace times. Adequate standards of learning and achievement must now await the return of more normal schedules, better prepared students, and sufficient staff. Great credit is due the reduced staff and the hurried students for the continuance of their high performance under existing conditions.

A brief statement of the teaching and research activities of the various departments follows.

## DEPARTMENT OF ANATOMY

Professor SAMUEL R. DETWILER, Executive Officer

Professor Dudley J. Morton, who for many years has been in charge of the teaching of gross anatomy, has resigned as Associate Professor of Anatomy, and is devoting practically his entire time to clinical studies and practice. His new title is Associate Clinical Professor of Anatomy. Following the resignation of Professor Morton, Professor Raymond C. Truex was placed in charge of the course in gross anatomy, with the collaboration of Professors Sherwood L. Washburn, Herbert O. Elftman, and Dr. William B. Atkinson. Dr. E. B. Kaplan of the Hospital of Joint Diseases has been appointed Instructor in Anatomy.

Professor Raymund L. Zwemer has been granted leave of absence in order to take a post with the United States Department of State. Dr. Benjamin Glick and Dr. Roland Hipsley, Instructors in Anatomy, have also been given leave of absence for military service. Dr. Julius K. Littman, formerly on military leave, has returned as Instructor.

During the academic year, anatomical instruction has been offered to seventy-three Army medical officers grouped as follows: plastic surgery, eighteen; neurosurgery, twenty-five; and surgery of the extremities, thirty. In connection with the graduate medical program, forty-six residents from affiliated hospitals in New York City received instruction in the Department. Twenty-two of this number attended Professor DeGraaf Woodman's course on dissection of the head and neck, and twelve were registered in Professor Detwiler's course in special senses. Professor Harry H. Shapiro offered two courses in applied anatomy of the head and neck to graduates in dentistry and a course in anatomy for graduates in orthodontia, with a total registration of thirty-five.

Professors Philip E. Smith and Wilfred M. Copenhaver have devoted the major portion of their time, exclusive of teaching, to a revision of the Tenth Edition of *Bailey's Histology*. In his research, Professor Smith has continued the endocrine studies reported last year. Professor Earl T. Engle is conducting research on the influence of the thyroid gland upon menstruation. Dr. David Danforth and Dr. S. B. Gusberg, Residents in Sloane Hospital, are working under Professor Engle's direction.

Professor Aura E. Severinghaus has given practically his entire time to his functions as Assistant Dean. Dr. Louis Levin is investigating the role of the anterior pituitary gland and the adrenal cortex on protein metabolism. Studies on fecal excretions of estrogens are in progress.

Professor Dan Moore, in charge of the electrophoresis laboratory, is investigating the physiochemical properties of the plasma proteins and hemoglobins of various species. His experiments are directed toward a better understanding of the powers and the limitations of electrophoresis and the ultracentrifuge. He is collaborating extensively with various departments of the school in this research.

Professor Copenhaver has published recent researches dealing with the relation of the development of the embryonic liver to blood formation. Professor Zwemer has published the results of researches on the plasma volume after lymph heart destruction, on the cytogenesis of corticoadrenal cells, and on thyro-adrenal relationships. His researches have been supported by a grant from the Josiah Macy, Jr., Foundation, and he has been assisted in his work by Dr. B. E. Lowenstein. Dr. Zwemer was elected to the council of the New York Academy of Sciences and has continued as secretary of its Biology Section.

Professor Washburn is engaged in studies to show the effect of removal of the seventh cranial nerve and the zygomatic arch in newborn rats. He is serving as Secretary of the American Association of Physical Anthropologists. Professor Elftman is engaged in researches dealing with problems in biomechanics. He has contributed a chapter to *Medical Physics* on the structure and function of the skeletal and muscular systems. In coöperation with Professor Zwemer, he is investigating the effect of administration of gold salts upon the

vitamin-C content of blood plasma and the distribution of gold in the tissues. He has given a course in anatomy and physiology to the students in physical and occupational therapy.

Professor William M. Rogers has been perfecting his electronic apparatus for the recording of electric potentials in nerve and muscle. He has also been investigating the effects of anterior poliomyelitis and of peripheral nerve injuries upon skeletal development. Professor Shapiro, in collaboration with Professors Charles Bodecker and William Lefkowitz of the School of Dental and Oral Surgery, has completed a histological study of the effects of experimental papillectomy on tooth eruption and tooth components.

Dr. William B. Atkinson has established a program of investigation upon various aspects of the endocrinology of pregnancy in the mouse. He has completed for publication a study on the endocrine factors involved in the desensitization of the uterus to implantation and deciduomal formation. Professor Adolph Elwyn has prepared a laboratory manual for the neuroanatomical courses.

Professor Detwiler is engaged in researches dealing with various factors influencing structural changes in the retina under light and dark adaptation. He is also studying regeneration of various components of the brain and behavior after experimental ablation in the embryo.

Dr. Antonio Bestard, Professor of Descriptive Anatomy in Asunción, Paraguay, has been a guest of the Department for six months. He has been observing anatomical techniques and teaching methods.

## DEPARTMENT OF BACTERIOLOGY

Professor A. RAYMOND DOCHEZ, Executive Officer

The accelerated program of teaching medical bacteriology and immunology to medical and dental students was continued through the year 1943-44. In preparation for military service, special emphasis and increased time have been devoted to the study of parasitology. A short course of special training in infections due to hemolytic streptococcus was given to selected medical officers of the Air Service of the United States Army. Professor Rhoda W. Benham continued the course in medical mycology given jointly by the Departments of Bacteriology and Dermatology, and in addition gave special instruction in this subject to a number of officers of the Army and Navy.

During the past year the number of bacteriological and serological examinations made by the diagnostic laboratory has remained at approximately the level of the previous two years—a total of 50,235 specimens were examined. Of this total, 32,423 were handled by the Wassermann laboratory and 17,812 by the diagnostic laboratory.

Research on poliomyelitis was continued by Professor Claus W. Jungeblut

and his associates. The interference phenomenon between simian and murine strains of virus was further investigated. Little or no interference was observed between Theiler's mouse virus and monkey poliomyelitis virus. The serological relationships between two mouse-adapted strains of human poliomyelitis virus (SK, MM) and Theiler's virus of mouse encephalomyelitis were examined on the basis of quantitative cross-neutralization tests. In collaboration with Dr. Paul Brutsaert, efforts were made to adapt one murine strain of human poliomyelitis virus (MM) to fertilized hen eggs and hatched chicks.

Professor Beatrice C. Seegal has continued her studies in collaboration with Dr. Emily Loeb of the Department of Medicine on the *in vivo* activity of cytotoxic serums. Work is under way to determine if possible the antigenic fractions responsible for the effects observed. In association with Dr. Margaret Holden, a study of the antibiotic substances in plants is in progress. Work continues on the anaphylactogenic nature of bovine albumin preparations as part of a project carried out at the request of the Subcommittee on Blood Substitutes of the National Research Council.

In December, 1943, Professor Theodor Rosebury was granted leave of absence for war service. The comparative study of acute herpetic gingivostomatitis and fusospirochetal infections of the mouth, carried on by Dr. Ada Clark and Professor Rosebury in coöperation with Professor Daniel E. Ziskin of the Dental Faculty, was completed. In Professor Rosebury's absence, Dr. Clark has been in charge of the teaching of dental students in bacteriology. As in the previous year, the greater part of the laboratory work for the dental students for the concluding two weeks of the course was devoted to the bacteriology of the mouth. Dr. Clark has carried on studies of the aerobic non-hemolytic streptococci of the mouth with special emphasis on the isolation of *Streptococcus salivarius* and the possible relationship of this organism to sub-acute bacterial endocarditis. She has also participated in the instruction of medical students in the enlarged course in parasitology.

During the past year Professor James T. Culbertson, in collaboration with Dr. Harry M. Rose, has studied several aspects of filariasis. Extracts of a cotton-rat filaria, *Litomosoides carinii*, were used as antigen in tests of skin sensitivity. Positive reactions were obtained in patients suffering from onchocerciasis, loiasis, and infection with *Wuchereria bancrofti*. It appears that the cotton-rat filaria antigen may be useful in the diagnosis of human filariasis.

With the aid of a grant from the Winthrop Chemical Company of New York, Dr. Rose and Professor Culbertson were enabled to visit Puerto Rico and to treat forty patients with human filariasis. In the lighter infections some were free from microfilariae at the end of two months' treatment. In others with more severe infections no change in the number of circulating microfilariae was noted at the end of the two months' period. A later check will be made on the efficacy of the treatment. Dr. Paul Brutsaert of the Government

Laboratories, Leopoldville, Belgian Congo, has successfully initiated work in Professor Culbertson's laboratories on an in vitro method of cultivation of *Trypanosoma gambiense*.

Dr. M. Maxim Steinbach and Mr. Charles Duca have pursued research related to the importance of constitutional factors in tuberculosis and on the possibility of effective chemotherapy of tuberculosis. A large number of chemicals have been tested for their in vitro effect on the growth of the tubercle bacillus.

Dr. Charles L. Fox, Jr., has developed methods for the chemotherapy of burns, wounds, and shock. Sodium salts instead of plasma or blood were used successfully in 101 cases of burns at Presbyterian, Babies, Harlem, Beth David, and Kings County Hospitals and in an additional eighteen cases of traumatic and hemorrhagic shock at Harlem Hospital. Studies (in collaboration with the Departments of Medicine, Physiology, and Surgery) showed that in profound shock, treatment with sodium salts alone restored the plasma volume and its proteins. These studies have contributed to the treatment of shock. Studies on the action of the sulfonamides and improvements in their clinical use have been continued.

Dr. Margaret Holden, in coöperation with Mrs. Julia Weld, has been studying the interference phenomenon as manifested by filterable viruses. In collaboration with Professor Beatrice Seegal, she has been studying the action of antibiotic substances obtained from plants.

Dr. Helen Purdy Beale has been studying the quantitative precipitin reaction using various strains of tobacco-mosaic virus.

Because of the influence of war conditions, graduate work in bacteriology has been diminished during the year. There have been nine candidates for the degree of Doctor of Philosophy, four of whom have been inactive because of military service. Two students, Mrs. Dorothy Naiman and Mr. Walter Kessler, have received the degree of Doctor of Philosophy, and one, Mrs. Sylvia Greenfield Moses, the degree of Master of Arts. There were a small number of unclassified graduate students taking special courses.

It has been possible to continue a certain amount of graduate student research. Mr. Saul Frances has made a study of respiration of *E. coli* by means of the Warburg apparatus when grown with and without the presence of sodium sulfadiazine. Mrs. Alice W. Knox collaborated with Professor Jungeblut and Dr. Brutsaert in the adaptation of a strain of murine poliomyelitis virus to the young chick, and in efforts to restore the virulence of *Trypanosoma gambiense* by cultivation in special living tissue media. Mrs. Naiman has completed her studies on the effect of X rays on the resistance of rats to *Trypanosoma lewisi*. Mr. Charles Duca has continued working on the influence of age on the course of experimental tuberculosis in animals. He has also collaborated with Dr. M. Maxim Steinbach in studies on the chemotherapy of tuberculosis.

and on the influence of constitutional factors on tuberculous infection. Miss Eleanora Molloy collaborated with Dr. Harry M. Rose in a study of primary atypical pneumonia and in an investigation of the nature of respiratory infection during the recent influenza epidemic.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

Teaching methods and personnel in the Department of Biochemistry have remained unchanged during the year. The enrollment of graduate students has continued but, as in the previous year, at a lower level than formerly.

The members of the Department have been active in research, a considerable fraction of which has been devoted to problems of the war. Last year's contracts with the Office of Scientific Research and Development (O.S.R.D.), through the Committee on Medical Research, have both been renewed, and that concerned with plasma proteins has been widened in scope to include chemical studies of various blood substitutes and antibiotic agents, under the general direction of Professor Clarke. Much of Professor Clarke's time has been given to his duties as Special Assistant to the Director of the Office of Scientific Research and Development, in the coordination of the work carried on in various industrial and academic research laboratories, on the elucidation of the constitution and towards the synthesis of penicillin. Professor Edgar G. Miller, Jr., has devoted much time and thought to the problems of the University committee on postwar developments.

In the field of academic research Professor Miller has continued his investigations, in collaboration with Dr. Victor Ross, of sperm metabolism. Professor Goodwin L. Foster has further developed the isotope dilution method for the estimation of amino acids. Professor David Rittenberg and his collaborators, Dr. Konrad Bloch and Dr. David Shemin, have carried out with the aid of heavy nitrogen extensive studies of the "kinetics" of nitrogen metabolism and of the mechanism of growth in regenerating liver and in tumor tissue. With the aid of deuterium and heavy carbon they have also been able to establish the importance in intermediary metabolism of acetic acid. They also have demonstrated the conversion of dietary cholesterol to pregnandiol in the human subject.

Professor DeWitt Stetten, Jr., and Dr. George E. Boxer have completed a study of the rate of turnover of choline in phosphatides and have initiated extensive studies of the metabolism of glycogen and other carbohydrates with the aid of deuterium. Professor Stetten, in collaboration with Professor Homer D. Kesten of the Department of Pathology, has encountered an apparently new type of dietary defect, acute interstitial myocarditis, which develops on diets containing ethyl laurate.



In addition to continuing, under O.S.R.D. contract, his studies on the composition of typhus vaccines, Professor Erwin Chargaff with his group has studied the polysaccharides and nucleoprotein of tubercle bacilli and has pursued his extended investigation of the chemistry of blood coagulation.

Of the visiting scientists, Dr. Gwei-Djen Lu has studied the metabolism of the carcinogenic agent butter yellow, and Dr. Zacharias Dische has investigated the mechanism of anaerobic glycolysis and of phosphorylation in normal and in tumor tissue.

Professor Maxwell Karshan has with two assistants been solely responsible for the instruction of biochemistry to students of dentistry, six of whom have been permitted to assist in investigations of the relation of fluoride to dental caries. Professor Karshan has also continued, in collaboration with Dr. Benjamin Tenenbaum, his studies of periodontoclasia.

## DEPARTMENT OF CANCER RESEARCH

Professor WILLIAM H. WOGLOM, Acting Executive Officer

Because of the nature of its work this Department has not been touched by the accelerated schedule and thus has been able to continue its course much as before.

The investigations of Professor Woglom on carcinogenesis, referred to in previous reports, are nearing completion and will soon be ready for publication. Other experiments, on which he has been more recently engaged, concern the question whether viruses are responsible for mammalian tumors. It may be said at once that despite the employment of several hitherto untried procedures there has been not the slightest indication of such an origin, though it is only fair to say, also, that the work is still in a preliminary stage.

Another phase of this problem is under investigation by Professor Gray H. Twombly, who is continuing an experiment mentioned in last year's report. Despite the success of Dr. Alfred Taylor, of the University of Texas, who describes the production of tumors in mice with cell-free fluids from fertile eggs in which mouse tumors have been grown, Professor Twombly has been unable to elicit them by such means. This confirms reports, published or unpublished, from other laboratories.

Dr. Jacob Heiman has completed a series of experiments on the inhibiting effect of testosterone propionate and progesterone on the appearance of spontaneous mammary adenocarcinoma in mice. Very few of the treated animals developed these neoplasms, the incidence being even lower than that in mice injected with testosterone only, as previously reported. Dr. Heiman has now under way work on the effect of the antireticular cytotoxic serum of Bogomol's upon the growth of benign and malignant tumors in mice and rats.

Professor Edward L. Howes, of the Department of Surgery, has almost

completed his experiments on the early stages of carcinogenesis, which demonstrate certain differences between the tissues of susceptible and unsuceptible animals in their reaction to carcinogenic agents.

Dr. Gwei-Djen Lu, a Fellow of the International Cancer Research Foundation and a visiting scholar in the Department of Biochemistry, has been studying in tumor-bearing animals an enzyme that affects the general carbohydrate metabolism of the host and has been seeking any relationship that may exist between vitamins and tumor growth.

Dr. Louis Herly, a part-time volunteer, is studying the possibility of distinguishing between benign and malignant lesions, especially of the breast, by the manner in which they fluoresce in filtered ultraviolet light.

Professor Woglom continues as a member of the Scientific Advisory Committee of the International Cancer Research Foundation and as editor of *Cancer Research*.

Ten lectures have been given by members of the Department, and two papers have been published. During the year the Yale University Press published *The Riddle of Cancer*, Professor Woglom's translation of Professor Charles Oberling's *Le Problème du cancer*.

The following firms have generously continued to supply pharmaceutical products for experimental purposes: Roche Organon (through Dr. R. J. Floody) and Schering Corporation (through Dr. Erwin Schwenk).

## DELAMAR INSTITUTE OF PUBLIC HEALTH

Professor HARRY S. MUSTARD, Director

There were seventeen students registered as candidates for the degree of Master of Science: thirteen physicians, three dentists, and one statistician. The degree was conferred upon fifteen, two students taking the course on a two-year basis. In addition to these, there were twenty-nine special students, including twenty-one medical officers of the United States Navy.

In coöperation with the Navy School of Military Government, the staff of the DeLamar Institute organized an intensive teaching program designed to train medical officers in the fundamentals of public health practice and tropical medicine. Since September, 1943, twenty-one officers have been registered at the Institute. Most of these men are now on active duty in the Far East or in Europe.

Supported by funds from the Josiah Macy, Jr., and the John and Mary R. Markle Foundations, the Institute has begun its program of teaching and research in the field of tropical medicine. The Division of Parasitology, under Professor Harold W. Brown, began operation on January 1, 1944. Professor Brown is engaged in a study of the treatment of filariasis, in collaboration with the United States Navy.

An intensive course in certain aspects of tropical diseases, covering the eight weeks of the fourth quarter, was offered for the first time. It was attended by most of the candidates for the degree, four special students, and the Navy group. Plans are now being formulated to broaden and intensify post-graduate studies in industrial hygiene and in public health aspects of dentistry.

In addition to the regular teaching of third- and fourth-year medical students in biostatistics, epidemiology, industrial hygiene, sanitary science, and public health practice, the Institute, through the Professor of Parasitology, has participated in the teaching of second-year students, and has given a series of lectures in tropical diseases to the fourth-year class. The Institute has also provided a course in public health for students in the School of Dental and Oral Surgery.

The following are the major research studies being carried on at the Institute: treatment of filariasis, in collaboration with the United States Navy; epidemiology of dental caries; streptococcus studies, in collaboration with the New York City Department of Health; effects of radium emanation on lungs and kidneys of radium workers; dangers to workers in use of formaldehyde glue; toxic properties of Koroseal, Diphenyl Monosphate and mildew-proofing products.

The Director and other members of the staff continue to serve as consultants or in an advisory capacity to a number of outside agencies and to certain agencies of the United States Government. Emeritus Professors Haven Emerson and Earle B. Phelps have been most cordial in assisting in meeting teaching problems created by staff vacancies.

Visitors to the Institute from abroad and from South and Central America included health officers and others from Argentina, Brazil, Chile, China, Colombia, Great Britain, Haiti, Mexico, Peru, Uruguay, and Venezuela.

## DEPARTMENT OF DERMATOLOGY

Professor A. BENSON CANNON, Acting Executive Officer

The Department of Dermatology has made every effort to meet the demands of the accelerated teaching program as effectively as possible despite the obvious difficulties involved. It was definitely felt by the staff that the two chief necessities in the teaching of both the third- and fourth-year students were that the instruction in syphilis be increased and that an opportunity be given to see as many actual cases of skin diseases as possible. The Syphilis Symposium for fourth-year students, which had been omitted during the previous year due to difficulty in scheduling, was again organized under Professor J. Lowry Miller's direction. Among the outside lecturers and demonstrators who contributed to the effectiveness of these sessions were Dr. John F.

Mahoney, who spoke to the group on the treatment of early syphilis with penicillin, Dr. Edwin P. Maynard, on cardiovascular syphilis, and Dr. J. R. Liss of City Hospital, who presented a very excellent demonstration of gross pathology of syphilis.

Special ward rounds have been a part of the teaching program for some time. It has been decided to place the organization of fourth-year teaching under the direction of Professor J. Lowry Miller, and that of the third year under the direction of Dr. Leslie P. Barker.

There have been several phases of investigative work carried on during the past year. Closer collaboration between the clinical studies of the fungus diseases and the mycological laboratory work has seemed particularly important due to the great increase in the number of cases of fungus infections and with special regard to the prevailing epidemic of ringworm of the scalp. To this end Professor Miller has undertaken a clinical investigation. Professor Rhoda W. Benham has collaborated with Professor Miller in the mycological and cultural studies connected with this investigation. Professor Benham has also been continuing her study on the nutrition of the fungi and has given a number of special lectures on this subject during the past year. She gave lectures on fungi for the new course in tropical medicine under the auspices of the DeLamar Institute of Public Health, has coöperated with Professor David C. Bull in giving some sessions on ringworm of the foot to a group of Army doctors assigned here for special study, and has presented material on pathogenic fungi to a group of Army doctors stationed at Mitchell Field.

The study of arsphenamine in the intensive treatment of patients on the special ward has been completed. A total of 332 cases was treated, and the results of this work were presented at the Chicago meeting of the American Medical Association by Professor Cannon. Based on the work done on the ward with massive arsenotherapy in the treatment of early syphilis, an intensive plan of treatment was devised for ambulatory cases in the Vanderbilt Clinic. The results of this study were presented before the New York Medical Association at its May meeting. A fourth paper is now in preparation dealing with the experimental work in the Vanderbilt Clinic in the treatment of early syphilis with intramuscular and subcutaneous injections. At the termination of the study with arsphenamine in the treatment of early syphilis, studies with the use of penicillin were started. The results to date have been most satisfactory.

Professor Paul Gross has continued his experimental work on metal poisoning, which was made possible by a grant from the John and Mary R. Markle Foundation. Professor Gross and Professor Beatrice Kesten have carried forward their clinical studies on the treatment of psoriasis with lipotropic substances. Dr. William Curth has undertaken a study of the treatment of acne cases with estrogenic hormones incorporated in an ointment base for

topical application. Through the courtesy of Professor Martin H. Dawson, crude penicillin has been made available for trial in the local treatment of certain cases of superficial infections of the skin. This work has been under the direction of Professor Lewis B. Robinson.

Professor Cannon gave a paper at the June meeting of the American Dermatological Association on the apparent cure of several cases of subacute disseminated lupus erythematosus with iodine in the form of tincture of iodine or Lugol's solution given internally—an observation not previously presented.

## DEPARTMENT OF MEDICINE

### Professor WALTER W. PALMER, Executive Officer

Conditions due to the war, as they were described in last year's report, continue. A few additional men have left for service in the armed forces or work related to the war effort. The change in grand rounds made necessary by the reduced staff has resulted in an improvement in instruction, and the inauguration of clinical conferences on Saturday mornings, 11:30 to 1:00, has produced good results. The physician in charge presents his patient or patients. Then the several phases, physiological, chemical, and pathological, are discussed by experts in these fields. If the subject offers a special clinical aspect, a representative from the service in question discusses the problem. The level of the presentation is set for both students and staff. During the year the amphitheatre has been crowded, indicating the popularity of these exercises.

The method of presentation of subjects described above is the logical outcome of the progress in clinical medicine. No longer is it possible for any one man in clinical medicine to encompass the entire field. A well-rounded staff has men who become experts in a certain subject and should know more than any other member about it. When a problem impinges on his sphere of knowledge, both students and staff are desirous of hearing his views. The facilities of the Service have been used under an arrangement with Professor Franklin M. Hanger for teaching physical diagnosis. Dr. Julia M. Jones, Assistant in Medicine, and other members of our resident staff have given valuable assistance in maintaining both these courses of instruction.

Through an arrangement with the Metropolitan Life Insurance Company, Professor Edgar M. Medlar has been appointed as Associate Professor of Pathology and Visiting Pathologist assigned to the Tuberculosis Service. Professor Medlar's investigations are supported by the John Hegeman Memorial Fund. His work promises to contribute materially to the progress of the work in this Service, as well as to the field in general.

Professor I. Ogden Woodruff reports on the first experience with the accelerated intern program at Bellevue. As far as the members of the armed forces are concerned, this means a nine months' internship only. This year

with the rotating type of internship, three months medicine, three months surgery, and three months chest or pathology has been tried. How it will work out from the standpoint of the interns remains to be seen. It has seemed that all who were entering the Army and the Navy should have some medical and surgical experience. An exchange of impressions in September will enable a determination as to whether the present setup is working satisfactorily.

On the medical side every effort is made to offer the interns a maximum amount of clinical experience. Two senior Attendings are constantly on duty and frequent consultation rounds are held in which the juniors actively participate. Appreciation to the other senior members of the Attending Staff for their cordial and active coöperation has been expressed by Professor Woodruff. With teaching, check rounds, and staff conferences they come to the hospital four days each week throughout the year irrespective of whether they are officially on duty.

Professor Woodruff further reports that effects of the accelerated program are beginning to manifest themselves by the increasing amount of time needed for the students to be in any way sure of fairly elementary physical diagnosis, but that there seems to be no staleness or lag of interest.

Postwar plans for rehabilitating Bellevue involving the expenditure of some \$15,000,000 are being developed. If the plans contemplated are carried through, the First Medical Division will have about 140 beds. Adequate facilities for teaching and laboratory investigation are to be provided.

In coöperation with the Trudeau School of Tuberculosis, a two weeks' intensive course, chiefly in nontuberculous diseases, was given at Bellevue Hospital to seventeen physicians. Those registered were from various states and from Central and South America.

Under the University's contract with the Army, nine medical officers were given a one month's course in the surgical aspects of pulmonary disease, under the supervision of Professor Adrian V. S. Lambert. In addition, four medical officers, who will be assigned to hospital ships bringing casualties from the theaters of war, were given three weeks' instruction in the collapse therapy of pulmonary tuberculosis. Two students enrolled in the DeLamar Institute were given instruction for a period of two months.

Individual arrangements were made for the instruction of a number of postgraduate students, some from South America, sent under special fellowships. These included one physician from Peru, sent by the Institute of International Education; one physician from Ecuador, sent by the Pan-American Sanitary Bureau; one resident surgeon and one assistant resident physician, sent by the Commonwealth Fund from Tennessee; and one physician from China, sent by China Medical Board of the Rockefeller Foundation.

The entire Attending Staff of the First Division has cheerfully carried the extra load due to the depleted staff and the accelerated program.

In the past year, forty-one members of the fourth-year class have served clinical clerkships and substitute internships on the Research and Clinical Services of the Goldwater Memorial Hospital. This experiment in student teaching on a medical service devoted to chronic illness continues to be a valuable and interesting training for the students.

The Department is occupied in research carried on under the Office of Scientific Research and Development. Professor David Seegal reports that his research service under an O.S.R.D. contract has continued to serve as an experimental and clinical testing station for various blood substitutes. The results of the study carried on by Professors Forrest E. Kendall, Arthur J. Patek, Jr., Joseph Victor, and Drs. Alice Lowell and Henry Colcher with Professor Seegal indicate that with proper chemical controls certain preparations may prove to be useful plasma substitutes. Professor Kendall, Dr. Liese Lewis, Professor Victor, and Miss Anne Schwachman have carried on an urgent war problem for the Federal Security Agency. Lieutenant Max Bovarnick was assigned to the laboratory for six months to work on certain aspects of this study.

The O.S.R.D. problem on adaptation to high altitude carried on by Dr. C. G. King and Dr. Hylan A. Bickerman has been completed.

Under the auspices of the Committee on Medical Research of the National Research Council and of the National Selective Service System, re-examination of 1,000 men rejected in New York for cardiovascular diseases was carried on under the supervision of Professor Robert L. Levy. About 18 percent of men so rejected could be reclassified from 4F to 1A. As a result of this work, criteria for the examination of registrants have been modified and reclassifications have been done in other sections of the country, not only in cardiac diseases but also in other fields. Many facts of interest concerning the types of cardiac disease encountered in the adult male population have been brought to light.

With the aid of a grant from the Committee on Medical Research of the National Research Council, a study of blood pressure in Army officers has been made by Professor Levy. This has been based on 22,741 records in the Office of the Surgeon General, 5,000 records obtained from Colonel Albert G. Love and made a number of years ago, and the reports of necropsy protocols in the Army Medical Museum. The statistical analyses have been made with the help of Miss Dorothy L. Kurtz in the Record Room of the Presbyterian Hospital, and Dr. John R. Fertig, Professor of Biostatistics, has served as adviser in the final presentation of the material.

Professor Alvan L. Barach reports that studies of subjects exposed to simulated high altitudes have continued in the low-pressure chamber at Welfare Island. Measurements have been made of the arterial blood gases and of mental and bodily function at altitudes between 42,000 and 47,000 feet. These studies have included the use of new apparatus.

Professor Alexander B. Gutman, serving as Emergency Laboratory Consultant, Army Air Forces, has aided in establishing stations for grouping and typing of hemolytic streptococci at air bases in different parts of the country. At these stations data are being collected relative to the geographic and seasonal correlation of hemolytic streptococcus infections with the incidence of rheumatic fever. The data already available provide additional evidence that Group A hemolytic streptococcus infections are an inciting factor in rheumatic fever.

Professor Michael Heidelberger has continued research principally on war problems, acting as consultant on a project classified as "secret" and carried out by Professor Forrest E. Kendall at Welfare Island and Dr. L. A. Julianelle at the Public Health Research Institute of New York City, and as principal investigator in another such project carried out jointly with Dr. E. A. Kabat, Research Associate in Biochemistry. Professor Heidelberger, with Manfred M. Mayer, a graduate student, is also carrying on immunochemical studies in human malaria under a contract classified as "restricted" between the Committee on Medical Research of the Office of Scientific Research and Development and the University. Medical officers of both the Army and the Navy have visited the laboratory to acquire some of the methods developed. At the request of the Pneumonia Commission, the study has continued of human volunteers immunized with the capsular polysaccharides of pneumococci.

Dr. Sidney C. Werner has worked under a government contract of the Office of Scientific Research and Development to study the excretion of urinary neutral 17-ketosteroids in burns and the effect of methyl testosterone in these patients.

Professor Franklin M. Hanger, Jr., has continued his studies of the nature of the protein changes occurring in certain types of liver derangements. He has also devised an ingenious method by which certain physical properties of the albumin fraction may be studied in various infections and diseases of unknown origin.

Professor Martin H. Dawson has continued clinical trials of penicillin. A summary of 100 cases was published in the March 4, 1944, issue of the *Journal of the American Medical Association*. Recently particular attention has been given to the treatment of subacute bacterial endocarditis and meningitis. Eight out of eleven cases of subacute bacterial endocarditis have apparently been successfully treated.

Dr. Harry M. Rose has continued his work on problems concerning primary atypical pneumonia, with particular regard to the etiology of the disease. Observations on the development of cold agglutinins and agglutinins for certain strains of indifferent streptococci in atypical pneumonia were made. The work on virus and bacterial infections was carried out in collaboration with Miss Eleanor Molloy and Miss Katherine C. Mills, that on helminth infections, in collaboration with Professor James T. Culbertson.



Professor Robert F. Loeb, with Drs. George A. Perera, Abbie Knowlton, and Alice Lowell, has made studies on the effect of desoxycorticosterone on arterial blood pressure. Their earlier observations that this substance causes elevation of blood pressure in Addisonian patients as well as dogs have been confirmed. Studies are under way attempting to discover the mode of action of desoxycorticosterone in bringing about hypertension.

Professor Victor has written a review on volumetric and manometric methods for measurement of cell respiration and other processes for the volume on *Medical Physics* edited by Otto Glaser. In collaboration with Dr. Chen-Hsiang Huang, Professor Victor has studied the effect of a western strain of equine encephalomyelitis infection on the metabolism of chick embryo tissue. Dr. Alfred Steiner has demonstrated that there is a temporary decrease of the serum cholesterol level in patients who are fed soya lecithin.

Dr. Emily Loeb has continued studies with Professor Beatrice Seegal on the role of infection in the progress of chronic glomerulonephritis. Further work with Professor Seegal on cytoxic sera has resulted in the production of chronic nephritis in the rat.

Professor Levy, with Dr. Herbert Ogden, has carried on a study of the significance of auricular premature beats with particular reference to prognosis. Dr. René Wégria, with Dr. Harry Aranow, Jr., has found that intravenous injection of lanatoside C is particularly useful in acute cardiac failure because of the relatively wide margin between therapeutic and toxic dose. Dr. Wégria, in collaboration with Dr. Katherine Smull, in their studies of the effects of large doses of salicylates in rheumatic fever, both intravenously and by mouth, has found that the blood levels of the salicylate have been moderately lowered by administration of sodium bicarbonate. Dr. Wégria, in observations on the effect of digitalis shortly after the occurrence of acute cardiac infarction, finds that with the development of congestive failure this drug may be given with safety and benefit. Evidently the dangers of its use after coronary occlusion have been unduly stressed in the past.

Professor Barach reports that repeated bronchial relaxation in patients with intractable asthma has been found to be much better than simple palliative therapy. Continued studies on the use of the equalizing pressure chamber to immobilize the lungs in advanced pulmonary tuberculosis have shown that arrest of lung movement in some cases is followed by collapse of cavities of considerable size. A portable model has been constructed which promises to make this therapy practicable.

The research activities of the group working with Professor Dickinson W. Richards during the past year can be divided into the investigations at Bellevue Hospital and those at the Presbyterian Hospital. Dr. Alice Lowell, resident physician on Professor Seegal's staff at Goldwater Memorial Hospital, has been coöperating with them in the shock project at Bellevue. The research staff at Bellevue Hospital has been made up of the original nucleus under Pro-

fessor André F. Cournand working under the grant from the Commonwealth Fund, and in addition a group of research fellows and technicians working under an O.S.R.D. contract, some of these individuals being affiliated with the New York University Department of Physiology and the others with this Department. Professor Cournand and Dr. Richard Bloomfield of the New York University group are making a special study of pressure tracings from the femoral artery, the right auricle, and the right ventricle under conditions of shock and other diseases. The state of respiration and circulation in pneumothorax and following total removal of the lung have been among the conditions under investigation.

At the Presbyterian Hospital, the work has been under the immediate direction of Dr. Eleanor Baldwin, assisted by Dr. Lucile Moore. The studies of shock at the Presbyterian Hospital have been restricted to measurements of the circulation in severe burns, carried out in collaboration with Professor Allen O. Whipple's group in the Department of Surgery. In the field of respiratory physiology, Dr. Baldwin is collecting the material which has accumulated at both the Presbyterian and Bellevue Hospitals on the general subject of pulmonary fibrosis and emphysema and has been able to derive from this a new classification of these conditions. Dr. Baldwin is also making studies of the respiration and circulation of patients with chronic heart disease. In coöperation with Dr. Aranow and Dr. Wégria of the Department of Medicine, and Dr. Robert P. Nobel of the Department of Physiology, measurements of the circulation using the catheterization technique are being made before and after digitalis therapy.

Professor Alexander B. Gutman, with Mrs. A. B. Gutman, has synthesized a new substrate, phenolphthalein monophosphate, which makes possible a greatly simplified method for determining serum acid and alkaline phosphatase activity. With Mrs. Arline DeLamater he has developed an improved method for preparation of uricase which promises to result in a more highly purified enzyme than yet obtained. Also, they have worked out a gasometric method for uric-acid determination which appears to be more specific than the colorimetric methods now in use.

Professor Heidelberger, with Miss Graciela Leyton, of the Institute for Bacteriology, Santiago, Chile, has made a study of the mutual equivalence of the four components of complement in different animal species. Complement is an unstable complex in animal blood of importance in immunity to certain infectious diseases and widely used in diagnostic tests.

Drs. David E. Green and Sarah Ratner have isolated the l-amino acid oxidase of animal tissues in highly purified state and are studying the chemical nature of its prosthetic group. Dr. Ratner has continued chemical analyses of the glutamic-acid polypeptide of p-aminobenzoic acid isolated from yeast by former Professor Alvin Coburn and Dr. Green. Mr. Paul K. Stumpf has analyzed the factors which determine disintegration of bacteria by exposure

to ultrasonic irradiation and has worked out conditions for extracting enzymes, antigens, etc., in undenatured form from disintegrated bacterial cells. Dr. Green has obtained glutamic-acid transaminase in highly purified state from heart muscle.

The Constitution Clinic, under Professor George Draper's direction, reports studies of subjects with cancer of the breast and uterus, and hyperthyroidism. The early reports from the observations made for the Navy on pilot selection were most promising. A similar study for the Army is now in progress.

During the year Franklin A. Stevens has succeeded in identifying and removing several inactive fractions from ragweed pollens without detracting from the activity of the solutions.

Professor Randolph West has carried his studies of the effect of methyl testosterone in the test tube on some of the enzyme systems having to do with protein metabolism.

Dr. Werner has found thiouracil useful in the control of hyperthyroidism of recurrent toxic goiter postoperatively. Under the impetus of Professor George Daniels of the Psychiatry Department, he has studied glucose tolerance and a high protein diet in fatigue, in order to further observe the studies of Dr. Sidney Portis of Chicago indicating that as a result of fatigue there is a tendency for hypoglycemia which is believed to be controllable by diet and psychotherapy.

In association with Professor Alwin M. Pappenheimer of the Department of Pathology and Mrs. Katherine Edsall Smith, Professor William P. Thompson has described Bartonella-like bodies in the red cells of several patients after splenectomy.

The National Tuberculosis Association has made to the School a grant for the support of the investigation of "The earliest development and later evolution of tuberculosis lesions of the lungs." This grant will provide for a study of the data which has been accumulating for about fifteen years, and the results should add to the knowledge of the behavior of these early lesions and their proper management.

The staff of the Department is credited with sixty-three publications for the year.

Drs. Arthur J. Antennuci and Edmund R. P. Janvrin were promoted from Associates in Medicine to Assistant Clinical Professors of Medicine.

## DEPARTMENT OF NEUROLOGY

Professor TRACY J. PUTNAM, Executive Officer

This Department, as others, has felt the exigencies of the war. The loss of members of the Faculty into the service and the additional teaching load imposed by the accelerated program and courses for the Army have thrown a

heavy burden on the remaining staff. A month's course in neurosurgery was given twice in the summer and fall of 1943, and the neurologic portion of a course in neuropsychiatry was given in 1944. Because of these increased loads, many members of the Faculty have been able to devote time only to the administrative aspects of investigation. The new clinical clerkship in the third-year class was continued.

Professor Frederick A. Mettler has continued his investigations into the results of extirpations of the primate brain. It appears that the accepted version of the respective function of Areas four and six requires revision. The problems of "release" and "spasticity" are gradually becoming more clearly defined.

Professor Paul F. A. Hoefer's work in electrophysiology has progressed. He has completed a report on the findings in cases of head injury, and with Dr. Abraham Mosovich is preparing a report on cases of seizures and brain tumor. With Dr. Samuel A. Guttman, he has published a method of localization of transverse lesions of the spinal cord by means of electromyography.

Professor Henry A. Riley has begun the preparation of another volume of his Atlas based on Nissl preparations. This is a long-term project. Professor Abner Wolf has carried a particularly heavy load of teaching but has managed to continue his important studies on insect vectors.

Drs. Jerry C. Price, Heinrich B. Waelsch, Frederick T. Zimmerman, and David D. N. Nachmansohn have continued an interesting group of studies in epilepsy. Dr. Waelsch suggested the use of glutamic acid for the control of petit mal attacks. This was given a thorough clinical trial by Dr. Price, with encouraging results. Both Dr. Waelsch and Dr. Nachmansohn have studied the effect of glutamic acid and of other drugs on the enzyme system of brain cells and have laid an important foundation for future work. This group of studies was initiated by the facilities provided by the Rosett Gift, through the generosity of Mrs. Joshua Rosett. This gift was exhausted in 1943, and Dr. Waelsch accepted a position at the Psychiatric Institute, where he remains in close contact with other members of the group. Continuation of the work has been made possible by contributions from Parke Davis & Company, William Markham, and other contributors.

Dr. Nachmansohn has succeeded in preparing a relatively pure selection of cholinesterase. This has introduced a new tool into pharmacology and physiology and should do much to facilitate understanding of the metabolism of nervous tissue.

Dr. Zimmerman is completing an experimental study of brain injury. Dr. Ernst Herz has continued with the preparation of a series of teaching films especially intended for undergraduate instruction. He has also made a beginning of a thorough review of the diseases of the dystonia and athetosis group.

Dr. Joseph Moldaver has worked on the electrophysiology of muscle in

various disorders, particularly poliomyelitis, under a grant from the National Foundation for Infantile Paralysis. His work has attracted particular attention in relation to the much debated forms of treatment advocated by Sister Kenny. He has also studied a group of peripheral nerve wounds, in collaboration with Commander Thomas Hoen of St. Albans Hospital.

The technical advances made by Dr. Charles Sheer deserve mention. He has devised a most ingenious apparatus for the Head Injury Project and has introduced the use of frequency modulation into physiologic amplification. With Dr. Moldaver, he has designed a new apparatus for the more exact determination of chronaxia. Dr. Sheer has designed an electric-frequency analyzer which promises to be a great addition to our facilities.

Dr. Guttman has investigated the use of furmethide as a test for lesions of peripheral nerves and the use of ergotamine for the relief of postpuncture headaches. Dr. William Williamson has introduced a new technique of perimetry utilizing the phenomenon of afterimage.

Several government projects are being completed. The results are confidential and can be disclosed only through official channels. As a result of this completion, Dr. Elvin A. Kabat and Dr. John G. Lynn, IV, will shortly return to their previous duties in the Department.

## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

The two developments of special importance during the year have been the participation in the United States Cadet Nurse Corps and the formulation of plans for a graduate nursing program of study leading to the Master of Science degree.

The Bailey-Bolton bill was passed by Congress in July, 1943. It provides for the payment of tuition and other standard fees for students in the basic nursing course; outdoor uniforms; maintenance for the first nine months; and individual monthly stipends for two and one-half years. The last six months of the course are to be a service period during which the employing institution or agency pays the student. The student in return signs a commitment promising to continue in nursing for the duration of the war, accepting her assignments wherever she may be most needed, in military or civilian services. Thus the previous plan of Federal aid to schools of nursing becomes one of assistance to individual students whose professional careers may be fashioned according to the needs of the country.

Ten of our students had enrolled at the Bryn Mawr College Summer School of Nursing in June, 1943, with Federal scholarships under the previous plan. It was understood that they would become Cadets if the Bailey-Bolton bill were passed.

The decision about extending our participation in the Corps was one for the University and the Hospital, since both educational standards and nursing service to patients were involved. The resolution adopted by both institutions was:

*Resolved:* That the present participation in the program of the United States Cadet Nurse Corps be extended to future classes and to students now enrolled in the School for whom the necessary adjustments in educational schedules can be made, providing that the academic program of the University and the nursing services of the Hospitals at the Medical Center shall be preserved; with the definite understanding that it was essentially a war measure which should terminate with the return of peace conditions.

Careful study of the clinical assignments of the second- and third-year students proved that it would be impossible to accelerate their course to complete the required services within the thirty months' period required by the United States Public Health Service. Enrollment was therefore opened to the first-year class; twenty-two students enrolled in November, bringing our total to thirty-two Cadets.

The proposal for a graduate program in nursing education, providing instruction and experience for preparing specialists in various clinical fields and leading to the degree of Master of Science under the Faculty of Medicine, has been recommended subject to completion of satisfactory hospital arrangements. Miss Dorothy Rogers, who resigned as Director of Residence last summer, has accepted an appointment as Assistant Professor of Nursing (part-time) to develop this program.

During the summer of 1943, we were again in partnership with the Federal Government and Bryn Mawr College, in a Summer School of Nursing. The other coöperating schools were the Lincoln School of Nursing and St. Luke's Hospital in New York City, the Massachusetts General Hospital in Boston, and the University of Rochester. Professor Conrad again served as Dean. The details of the academic program were handled by Miss Elizabeth Wilcox, one of our Instructors in Nursing, who was granted a leave of absence to serve as Associate Dean. Miss Ruth Golloway was our other representative, in the position of infirmary nurse.

Registration figures for the Winter and Spring Term are as follows:

	<i>Winter (Sept.)</i>	<i>Spring (Feb.)</i>
THIRD-YEAR STUDENTS, FINISHING . . . . .	30	2
Degree, 13		Diploma, 2
Diploma, 17		
THIRD-YEAR STUDENTS . . . . .	94	81
Degree, 61		Degree, 48
Diploma, 33		Diploma, 33

SECOND-YEAR STUDENTS . . . . .	114	. . . . .	115
Degree, 80		Degree, 82	
Diploma, 34		Diploma, 33	
FIRST-YEAR STUDENTS . . . . .	150	. . . . .	143
Degree, 99		Degree, 95	
Diploma, 51		Diploma, 48	
TOTALS . . . . .	388	. . . . .	341

Forty-one graduates have received the degree of Bachelor of Science during the year. Diplomas were awarded to ninety-two members of the class of 1944 at the Graduation Exercises in the Hospital Garden on June 8. The address was given by Mr. Thomas Parkinson, President of the Equitable Life Assurance Society of the United States. Seventy-two graduates were admitted to the State licensing examinations: twenty-three in October, thirty-seven in January, and twelve in April.

The year has furnished further proof of the good fortune in being an integral part of the School of Medicine. The instruction in the basic sciences and in the clinical fields has been maintained at a high level. Both the Faculty and the students in nursing are fully appreciative of the coöperation which has accomplished this result.

Miss Eleanor Lee, Assistant Professor of Nursing, has been on leave of absence for the entire year to serve as Executive Secretary of the Recruitment Committee on the local Red Cross Nursing Service. Miss G. Harriet Mantel acted in her position during the year. Miss Florence Vanderbilt became Director of Health and Student activities, replacing Miss Dorothy Rogers in Maxwell Hall. Miss Helen F. Pettit was appointed Assistant Professor of Nursing.

The death of Mr. Dean Sage has robbed the Department of Nursing of one of its most loyal friends. His position as President of the Presbyterian Hospital Board of Managers enabled him to make effective his high standards of education and service in the field of nursing.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor BENJAMIN P. WATSON, Executive Officer

The Department has been notably strengthened by the appointment of Dr. William E. Studdiford, Jr., as Professor of Obstetrics and Gynecology. Professor Studdiford received his postgraduate training in the Sloane Hospital for Women and was a member of the staff when he was appointed Professor of Obstetrics and Gynecology in New York University. We welcome his return.

A large proportion of the staff is still in active military service, and several interns and residents have been called to duty in the course of the year. The remaining members have carried on the work with devotion and energy, and standards have been maintained.

It is the definite impression in this Department that military discipline has decidedly improved the attitude of the students; they have worked hard and have attained grades equal to, or above, those of former years.

There has been little time or opportunity for research in the Department, but certain lines of work have been carried on. Dr. Howard C. Moloy in the course of the year has arranged for the reproduction of various types of abnormal pelvises which will soon be available as teaching models. They will be available to other medical schools. The toxemia study, carried on by Professor A. J. B. Tillman, and the endocrine studies, carried on by Dr. Charles L. Buxton, have had to be abandoned temporarily, as both men are on active duty with the military forces.

## DEPARTMENT OF OPHTHALMOLOGY

Professor JOHN H. DUNNINGTON, Acting Executive Officer

The personnel of the Department of Ophthalmology has been reduced by the entrance of Dr. Alson E. Braley, Assistant Professor, and Dr. John S. McGavic, Instructor, into the armed forces and by the resignation of Dr. Raymond G. Ingalls, Instructor. Two new appointments were made as Instructors—Dr. Robert R. Chace and Dr. Frank Payne. The routine departmental work has been continued uninterruptedly through the unselfish efforts of the remaining members.

The research activities have necessarily been curtailed, but Professor Karl Meyer has continued his investigations on the chemical properties of penicillin. He has also instituted work on factors involved in natural resistance to bacterial infections.

Professor Ludwig von Sallmann, working under the auspices of the Knapp Memorial Foundation, has studied the hydrogel qualities of the vitreous; the penetration of different chemotherapeutic agents and alkaloids into the eye by various methods. Professor Manuel Uribe Troncoso, under the auspices of the Mary Harriman Fund, has continued his experimental investigations on glaucoma, devising a diathermic operation for its relief.

Professor George K. Smelser, in addition to further experimental work on exophthalmos, has devoted a large part of his time to a study of the healing of corneal injuries. In this investigation, done under an O.S.R.D. contract, particular attention has been paid to the effect produced by local anesthetics and chemotherapeutic agents on this process.



Dr. DuPont Guerry of the resident staff was awarded the degree of Doctor of Medical Science. His thesis was "Angiodiathermy of the Long Posterior Ciliary Arteries and Its Use in the Treatment of Glaucoma." The instruction of the resident staff was ably supervised by Professor LeGrand Hardy.

Dr. Arnold Knapp continues his active interest in the work of the Department and has proven a great stimulus to the younger men and in the research work conducted under the Knapp Memorial Foundation.

During the year there were twenty-eight publications by members of the Department.

## DEPARTMENT OF OTOLARYNGOLOGY

Professor JOHN D. KERNAN, Executive Officer

There have been no major changes in the undergraduate teaching in otolaryngology during the past academic year. Each group of students is instructed as a whole in the methods of examination. Then they receive individual instruction in the clinic. Ward rounds are made in Babies Hospital, Presbyterian Hospital, and in the Neurological Institute.

The courses for graduate students and residents have been continued, although the attendance has been curtailed because of the reduction in the number of residents in the affiliated hospitals.

Work in the chemical laboratory and the bacteriological laboratory has continued under the direction of Professor Harry Neivert. At the present time, the work is chiefly on posttonsillectomy hemorrhage and the effects of various foods on the nasal secretion.

Dr. Franz Altman is experimenting on the operation for Meniere's Syndrome. The hearing and deafness clinic has continued under the direction of Dr. William J. Greenfield. Dr. Nathan Soifer, a resident, is working with rabbits on the control of sinus infections by the use of sulfa drugs.

Professor George R. Brighton has continued the course in the technique of bronchoscopy and esophagoscopy during the year. This course was given twice for the benefit of the residents and outside practitioners.

## DEPARTMENT OF PATHOLOGY

Professor JAMES W. JOBLING, Executive Officer

New appointees to the Department were: Allen H. Seeger as Assistant from Buffalo General Hospital; Eugene R. Studenski as Assistant from Beth Israel Hospital; Dr. Celia White as Assistant in Pathology to assist with the teaching of the dental students; Dr. Edgar M. Medlar as Associate Professor of Pathology assigned to Medicine; Mrs. Lois Zucker as Research Associate in Chemical

Pathology; Margaret Bevans as Instructor at Goldwater Memorial Hospital; and Dr. Joseph Victor as Assistant Professor.

A series of twenty-four lectures in pathology was arranged at the request of the Aviation Medical authorities and given at Mitchell Field from October to January. Among the members of the Department who took part were Professors Maurice N. Richter, Abner Wolf, Homer D. Kesten, Edith E. Sproul, and Paul Klemperer, and Drs. David Cowen, Donald D. Parker, and William J. Pyles. Lectures were also given by other members of the hospital staff from the Departments of Medicine and Surgery. The course was much appreciated, and mimeographed copies of lectures have been bound and distributed.

Professor Alwin M. Pappenheimer continued to serve as a member of the Committee on Pathology of the National Research Council and also as Civilian Consultant to the Army Medical Museum.

Dr. Pyles has been working as Clinic Physician in the Tropical Diseases Diagnostic Laboratory and Clinic, which is a part of the New York City Department of Health. In November, 1943, he was sent to Guatemala by the John and Mary R. Markle Foundation. Dr. Pyles has also given lectures in the second-year course in parasitic diseases.

Special lectures were given during the course in pathology for the second-year students by the following: Professor Klemperer, Mt. Sinai Hospital; Professor Richter, New York Post-Graduate Medical School; Dr. Henry L. Jaffe, Hospital for Joint Diseases; Dr. David Marine, Montefiore Hospital; Dr. Joseph Victor, Goldwater Memorial Hospital; Dr. Otto Bessey, Director, Nutrition Laboratories, New York Department of Health; Dr. Lester Cahn, Dental and Oral Surgery; and Dr. Sidney C. Werner, Department of Medicine.

Professor Sproul has been in charge of the teaching of the dental students. Dr. Dorothy L. Stevens has been giving lectures to the student nurses. Professor Wolf and assistants have been giving courses in neuropathology for the military neurosurgeons and neuropsychiatrists.

As in previous years, members of the Babies Hospital Pathological Laboratory have collaborated with the resident pathologist at Sloane Hospital in the post-mortem examinations of the Sloane Hospital infants, and Professor Wolf and Dr. Cowen have examined all the neurological material of the laboratory. They performed fifty-nine autopsies from the Neurological Institute in addition to many brains examined from Babies Hospital, Sloane Hospital, and Presbyterian Hospital. There were 164 fresh-tissue examinations of neurosurgical specimens and 364 neurosurgical biopsy specimens.

Research in the Department has necessarily been curtailed because of the abnormal conditions. However, some of the members have found it possible to continue with original investigations. Professor Jobling is working experimentally on arteriosclerosis. Professor Pappenheimer, in collaboration with

Dr. Hans Kaunitz, has continued studies on various phases of vitamin-E deficiency. Professor Sproul, with the assistance of Mrs. Elvira Morpeth, is investigating enzyme systems of Rous sarcoma.

Dr. Herbert C. Stoerk has been studying the effect of various experimental conditions upon the involution of the thymus and also the relation of the thymus to choline esterine synthesis. Professor Kesten has further investigated the effect of soya lecithin on experimental atherosclerosis of rabbits. The effect of soya lecithin on the tolerance of rats to low atmospheric pressure is also under investigation.

Professor Wolf and Dr. Cowen are pursuing their investigations of human toxoplasmosis, with emphasis on the problems of vector transmission, transplacental infection, and the age factor. Professor Henry S. Simms, with the assistance of Dr. Mary Parshley and Professor Edward L. Howes from the Department of Surgery, has been concerned with the growth requirements of various tissue cells in the process of wound healing.

Mrs. Julia T. Weld has studied a substance produced by the growth of *B. pyocyaneus* which has the property in high dilution of dissolving collagen. She is also interested in the production of antibiotic substances by certain molds.

Dr. Benjamin N. Berg and Professor Theodore F. Zucker have continued their studies on gastric ulcers in rats in relation to dietary deficiencies. Professor Zucker has been interested in the nutritional value of certain vegetable proteins and has shown that small supplements of animal protein insure adequate reproduction and lactation.

Dr. Dorothy H. Andersen's important studies on the celiac syndrome are being continued with the financial aid of the Commonwealth Fund.

Assistance towards the research work of the Department has been received from the following sources, to which we wish to make grateful acknowledgment: The John and Mary R. Markle Foundation; University Patents, Incorporated; American Lecithin Company; William J. Matheson Commission; Commonwealth Fund; Fund for Wound Healing from the Office of Scientific Research and Development; Traders Oil Mill Company; William R. Warner and Company.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN McINTOSH, Executive Officer

Professor John D. Lyttle resigned his position at Columbia on March 31, 1944, in order to accept the position of Professor of Pediatrics and head of the department at the University of Southern California. Dr. Elvira Goettsch resigned on June 30, 1944, in order to accept an assistant professorship of pediatrics, also in the University of Southern California. Although these losses

of valued members of our teaching force are keenly felt, their academic promotion constitutes a well-deserved mark of recognition.

Dr. Conrad M. Riley resigned his position as Instructor on September 13, 1943, in order to accept a commission in the United States Navy. Dr. Charles A. Lang resigned his position as Associate on August 7, 1943, for considerations of health but, finding the life of obligatory leisure too onerous to tolerate, he happily resumed his active teaching duties on February 1, 1944.

Dr. Hattie E. Alexander was promoted at the beginning of the academic year to the position of Assistant Professor. Her important investigative work on the biology of *Hemophilus influenzae* and on the therapy of infections caused by this group of organisms received merited recognition in the form of the Mead Johnson award for 1943.

Appointments of Dr. Alberta W. Parker and of Dr. William A. Silverman to the rank of Assistant were made in line with their executive positions on the house staff of Babies Hospital. Dr. Hilde Bruch, returning in October, 1943, from a two years' leave of absence for special study, resumed her close connection with the Department of Pediatrics as an Associate in Psychiatry assigned to Pediatrics. During part of her leave she had participated in the research activities of the Committee on Food Habits of the National Research Council, which were published in Bulletin # 108 under date of October, 1943.

Dr. Celia White held the Holt Fellowship from January 1 to June 30, 1944, and Dr. Paul A. di Sant'Agnese, the Koplik Scholarship from April 1 to June 30, 1944.

On account of the manpower shortage, which has affected this Department severely, research activities were limited by comparison to those of recent previous years. Assisted by gifts generously donated by the Commonwealth Fund, Professor Alexander has continued her studies of *Hemophilus influenzae* infections, and Dr. Dorothy H. Andersen has carried on her studies of chronic nutritional disturbances in infants and young children. A part of Professor Alexander's time is devoted to special studies under the aegis of the Influenza Commission of the National Research Council; and both she and Professor Donovan J. McCune are actively engaged in research on prophylaxis of certain anaerobic infections, supported by O.S.R.D. funds. Grateful acknowledgment is made of the above-mentioned contributions to the work of this Department, and also of gifts from the Josiah Macy, Jr., Foundation, from the Mead Johnson Company, from the General Electric Company, and from Mrs. Brooks Emeny in support of various research projects.

The accelerated teaching schedule continues to exercise a baneful effect on the quality of the teaching, as well as on the receptive capacity of medical students. It must be recognized, too, that the quality of our teaching necessarily suffers because of the reduction in the hospital intern and resident staff, enforced by the Procurement and Assignment Service. Lacking an adequate

house staff, we have been forced to call in student volunteers at all times to help in carrying the clinical load of the hospital. This affords a small number of students a signal educational opportunity, of which they have been commendably eager to take advantage. Nevertheless, the extra load thrown on the house officers in teaching new substitutes on a schedule of rapid turnover has rendered it impossible to maintain the highest standards of clinical study. In addition, the health record of the house staff has been notably poor, due largely to the factor of fatigue.

Fifteen publications appeared from the Department during the academic year covered by this report.

## DEPARTMENT OF PHARMACOLOGY

Professor CHARLES C. LIEB,<sup>1</sup> Executive Officer

It was with the greatest regret that Professor Charles C. Lieb, for many years head of this Department, was obliged because of ill health to retire. His long and devoted service to the University and the Medical School has made an invaluable contribution to the training of generations of medical students. Not only was he active in the direct instruction of classes, but he also served for a long term as chairman of the second-year class Faculty and always took an active part in the shaping of educational policies and the administration of the institution. He will be greatly missed, and it is the expression of everyone that he may enjoy his well-earned leisure.

Dr. Harry B. van Dyke has been appointed by the trustees as Professor of Pharmacology and Executive Officer of the Department effective October, 1944. Dr. van Dyke comes with a rich experience in teaching and research, with special interest in the various newer fields of pharmacology, some of which have quite recently been brought into the foreground because of the war.

The instruction of medical and dental students in the interim has been carried forward by informal instruction, to which a number of the departments have contributed. The general supervision has been under the Department of Physiology. The entire Faculty is deeply grateful to Professor Magnus I. Gregersen and his colleagues for their coöperation in working out a satisfactory temporary arrangement for this year.

Further reorganization of the Department was necessitated by the resignation of Professor Michael G. Mulinos, who has accepted a post in another medical school. Dr. Mulinos has for years taken an active part in the direction and instruction of students, and his services will be greatly missed.

<sup>1</sup> Retired December 31, 1943.

## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

Several members of the Department continue to be on leave of absence. These include Dr. Kenneth S. Cole, Associate Professor, and Dr. Howard J. Curtis, Assistant Professor, who are both connected with the Metallurgical Laboratory of the University of Chicago; Major Harold A. Abramson, United States Medical Corps, Assistant Professor, who is with the Chemical Warfare Division; Dr. Joseph H. Holmes, who joined the Medical Corps of the United States Army Air Forces last September; and Dr. Elizabeth E. Painter, Instructor, who is working with Dr. Curtis at the Metallurgical Laboratory in Chicago. New appointments during the past year include Dr. Samuel Gelfan, Assistant Professor; Dr. Alfred Gellhorn, first appointed as Instructor and subsequently as Assistant Professor; Dr. Robert P. Noble, Instructor; and Mrs. Clarissa Hager as Assistant in Physiology. Dr. Gelfan was formerly Director of Research at the Van Patten Laboratories, and Dr. Gellhorn came here from the Carnegie Institution of Washington in Baltimore. Dr. William Cole, Professor of Physiology at Rutgers University, and his colleague Dr. James B. Allison, Associate Professor of Biochemistry at Rutgers University, have continued their association with us as visiting lecturers in physiology.

The following graduate students in physiology received their Doctor of Philosophy degrees during the past year: David Goldman, who worked with Dr. Kenneth S. Cole; Ingrith J. Deyrup, Instructor; Olive Huber, Instructor, Hunter College; William W. Walcott, Instructor; and Marjorie B. Zucker, Instructor.

Professor Gregersen has arranged for the teaching of the course in pharmacology until Professor Harry B. van Dyke, the newly appointed Professor of Pharmacology, takes up his duties here in October. Dr. Gelfan has been placed in immediate charge of the course. He is being assisted by Dr. Gellhorn, Dr. S. C. Wang, Assistant Professor, and by other members of the Department of Physiology. The course will include lectures on special topics by Dr. E. K. Marshall, Professor of Pharmacology at the Johns Hopkins Medical School, Dr. Carl Schmidt, Professor of Pharmacology at the University of Pennsylvania Medical School, Dr. James Shannon, Professor of Pharmacology at the College of Medicine, New York University, and others whose generous assistance is deeply appreciated.

The investigations on shock, initiated three years ago, have been continued under contract with the Office of Scientific Research and Development. Additional financial support for these and related studies has also been received from the Josiah Macy, Jr., Foundation.

Dr. F. J. W. Roughton, Research Associate, Professor Walter S. Root,

and Professor Gregersen have continued their studies with the dye and carbon monoxide methods of measuring blood volume. These studies have reopened the important question of metabolism of carbon monoxide by the body. Special methods are being developed in the laboratory to explore the problem further. During the spring, Drs. Roughton, Root, and Gregersen spent several days in Dr. Sid Robinson's laboratory at the University of Indiana, Bloomington, Indiana, conducting blood volume tests on subjects acclimatized to extreme tropical heat.

Studies on therapy of experimental shock have been carried on by a team consisting for the most part of Drs. Allison, Cole, and Walcott. Recently, Dr. Gelfan has also taken part in this program. The success of the study must be attributed very largely to the development by Dr. Walcott of a standard procedure for inducing hemorrhagic shock in dogs.

Professor J. L. Nickerson and Dr. Curtis have prepared a final report (now in press) on the new type ballistocardiograph which they developed here. A direct comparison on man of the ballistic and Fick methods of measuring cardiac output is being made by Professor Nickerson and Dr. Robert P. Noble in collaboration with Professor Dickinson Richards of the Department of Medicine. Professor Nickerson recently published a description of the Decade Photometer which he designed in response to the urgent need for a simple and reliable instrument for measuring plasma dye concentration. Critical tests with this instrument, now being manufactured under a subcontract with the Bausch and Lomb Optical Company, have been very gratifying. Dr. Nickerson has also made important contributions in the precise measurement of the local fluid loss in traumatic shock.

Uncompleted studies by Professor Root, Drs. Noble and Huber have opened up interesting problems in relation to the mechanisms regulating the volume of red cells in active circulation. Professor S. C. Wang and Dr. R. R. Overman have obtained promising results in a study of the nervous factor in shock. Dr. Gellhorn, employing radioactive technics, has continued his studies on the rate of transcapillary exchange of sodium, with special attention to the effects of anesthesia, hemorrhage, and pitressin. Dr. Noble and Professor Gregersen are taking part in a group study of burns which has been organized at the Presbyterian Hospital by Dr. Allen O. Whipple, Professor of Surgery.

Scientific papers in press include a report of histamine shock by Dr. I. Deyrup; an account of the properties of the smooth-muscle contracting substance in shed blood by Dr. M. Zucker; two papers on hemorrhage by Dr. W. W. Walcott; and a report by Professor Gregersen on a simplified procedure for determining blood volume in which several features of the dye method, hitherto precluding its routine clinical use, have been eliminated.

In May, Dr. Walter B. Cannon, formerly George Higginson Professor of

Physiology at the Harvard Medical School, gave two lectures to the present first-year class. Dr. Chiao Tsai, Ministerial Professor of Physiology in the National Central University, Chengtu, China, was a visitor in the laboratory from October to January. During his stay here, he and Dr. Zucker collaborated in an investigation which served to explain earlier differences in their observations on the smooth-muscle contracting substance in shed blood. Brief visits by a number of other scientists have been the occasions for profitable conferences on various physiological problems connected with the war.

Dr. Roughton delivered a Harvey Lecture this year entitled "Recent Work on the Respiratory Chemistry of the Blood." During December he held several seminars on this and related subjects before a selected group of scientific workers. In April he was invited to give the Hanna Lecture in Cleveland.

Professor Gregersen continues to serve as a member of the Subcommittee on Shock, Division of Medical Sciences of the National Research Council. Professor Root has been re-elected Secretary of the Eastern New York Section of the Society for Experimental Biology and Medicine.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

Although it has been necessary to make a number of changes in the personnel due to the enlistment in the armed forces of some of the younger members of the staff, the educational program has not suffered to any great extent, and the routine work and consultations have been carried on about as usual.

Of the ten psychiatrists composing the University group, two are on leave of absence for war service, and the Department has suffered a serious loss in the death of Research Associate Giles W. Thomas on January 13, 1944. He had been on the staff since 1934 and was a pioneer investigator of the emotional factors in rheumatoid arthritis. He contributed a great deal in his work on the medical wards, and there will be a posthumous publication of his studies.

Dr. Sadie Zaidens joined the staff on August 1, 1943. She is an experienced dermatologist with interests in psychosomatic medicine. Dr. Jacob Arlow became a member of the staff on October 1, 1943. He is engaged in psychosomatic research under the direction of Dr. Flanders Dunbar.

In the psychological department of Vanderbilt Clinic no tests were given between October 16 and December 15, 1943, as Dr. Zygmunt Piotrowski, the psychologist, was called to duty at the Army Rehabilitation Center, Fort Jackson, South Carolina. On December 15, Hanna F. Faterson, Ph.D., was appointed on a temporary basis. Intensive long-time service to large numbers of patients referred to the psychiatric social service is still not possible because of the limited staff of social workers.



The undergraduate teaching schedule has continued essentially the same as during the previous year. The Department has continued to take an active part in the Saturday student conferences given by the Department of Medicine for third-year students. These are a valuable means of introducing the psychiatric viewpoint in the medical setting and are thus accepted by the student as a part of his instruction in medicine.

The coöperation by the medical department of the Merchant Marine in sharing experience in clinical material on war neuroses has continued this year. This contact affords examples of front-line conditions important for training students, the majority of whom will enter the armed services.

The Department of Psychiatry has conducted a three months' postgraduate course for members of the United States Army School for military neuropsychiatry. The Psychiatric Institute and all subdivisions of the Department have participated.

Professor Robert B. McGraw and Professor Edwin G. Zabriskie of the Department of Neurology arranged a lecture course for home nursing personnel, New York Chapter of the American Red Cross, on the attitude of the family toward the returned soldier, particularly the neuropsychiatric group. These lectures were very well received. Dr. Viola Bernard held a seminar of five sessions for Special Interviewers for the Handicapped, United States Employment Service of the War Manpower Commission.

Dr. Earl H. Adams has continued his work in connection with the Student Health Program at Columbia University. Since 1934, he has been building up a psychiatric service primarily for the emotional problems of male undergraduate students. It is available also for consultations in psychiatry and neurology for members of the graduate schools and Faculty.

Despite the war situation which has prevented, interrupted, and postponed work on certain problems, the research workers in the Department have been able to continue a large number of investigations, many of which have a direct bearing on the war effort; others elucidate factors in psychopathology and neurology that will be utilizable in clinical practice for many years to come; and some are of basic scientific significance with as yet no immediately useful formation.

Fifty-nine published articles and books have appeared from the Department during the past year; and in addition, thirty-two unpublished articles and special papers have been given before various medical societies.

Active researches at the Psychiatric Institute include: (1) investigation of the lipid metabolism of the nervous system; (2) studies on the biochemical changes in the blood serum following shock therapy; (3) a study of the role of glutamic acid as a therapeutic agent in epileptic and mental patients; (4) research on subliminal auditory and visual perception; (5) an attempt to establish the pathology of multiple sclerosis, diffuse sclerosis, and some en-

cephalo-myelitides as expressions of allergic reactions in the central nervous system; (6) neuropathologic changes resulting from diets deficient in essential amino acids; (7) acetylcholine convulsive shock therapy; (8) electroshock therapy; (9) various investigations in electroencephalography; (10) experimental production of convulsive seizures in monkeys; and (11) studies in medical genetics on nearly 2,000 pairs of twins.

During the academic year Dr. Dunbar's book *Psychosomatic Diagnosis* was published. This represents a final report on fourteen years' experience on the medical and fracture services of the Presbyterian Hospital, originally undertaken through a grant from the Josiah Macy, Jr., Foundation.

Dr. Arlow has been studying a new group of serial admissions in order to determine the percentage of cases entering the hospital at a time when brief psychotherapy, such as is at present available, could modify the course of the illness. The serial admissions group studies over the past fourteen years have been followed in order to check (a) the accuracy of diagnostic impressions and (b) the effectiveness of therapy in those accepted for treatment. The preliminary estimate is that the importance of emotional factors in illness for the disease groups studied can be demonstrated in about 80 percent of the cases. However, only about one half of these arrived at the hospital at a time when the disease process is sufficiently reversible to warrant palliative treatment.

Dr. Ruth Moulton has continued her studies in coöperation with Professor Daniel E. Ziskin of the Dental Department. A study is ready for publication on vaginal and oral smears as a psychosomatic technic, which represents a comprehensive two years' research. Dr. A. Louise Brush, in her research on hypertensive and coronary admissions to Presbyterian Hospital, has also followed the favorable cases in the Vanderbilt Clinic. An analysis is now being made of the accumulations of findings. A number of other interesting psychosomatic problems have been started, but it is too early to make any comments on progress.

Professor George E. Daniels has been appointed a member of the recently organized Research Fund Committee for Psychosomatic Medicine, which will be administered by the National Committee for Mental Hygiene. This group will function toward a better integration of research in this field and will attempt to stimulate interest in the most promising projects.

## DEPARTMENT OF SURGERY

Professor ALLEN O. WHIPPLE, Executive Officer

In addition to the regular schedule, the Department has carried out the special training courses for Army medical officers in surgery of the extremities, plastic surgery, and thoracic surgery, the latter course being given at the Bellevue

Hospital Chest Service, the other two at the Medical Center. In all these courses a preliminary basic course of ten days in wound healing, shock, burns, blood and blood substitutes, and oxygen therapy was given.

Projects under the Office of Scientific Research and Development have been carried out in the study of burns and contaminated wounds, in wound healing, in the development of gauze and cotton in the form of absorbable cellulose to control hemorrhage, and in a nonsuture technic of vascular anastomosis.

During the months of July, August, and September, Professor Whipple was sent to Great Britain and North Africa as special consultant of the National Research Council to study the use of penicillin in burns and war wounds, especially from the standpoint of its local application. This assignment gave an unusual opportunity to study the development of this new bacteriostatic substance in its application to patients in both civilian and military hospitals, but perhaps the most valuable experience was meeting and conferring with the surgical consultants in the British and American armies, learning about their problems first hand, and in discussing common interests with the medical officers in the general hospitals.

Professor Whipple enjoyed several interesting visits with the Presbyterian Hospital Unit, Base Hospital #2 of the E.T.O.U.S.A., and has expressed unbounded admiration for their fine organization and splendid *esprit de corps*. This Unit was considered the best of the base hospitals and was visited by officers from all over the British Isles as the model in organization and personnel.

Our accelerated program continues to be our most difficult task in teaching and organization. Some courses have been modified because of the shortage of staff, especially intern and resident. The third-year students, as clinical clerks, have been of the greatest assistance in the operating rooms, where the load of operating has increased over previous years.

The instruction has been increased to both the third- and fourth-year groups in the management and care of traumatic lesions, and use has been made of the clinical material in the projects in burns and infected and contaminated wounds.

The fracture service of the Department has continued throughout the year at full activity. The instruction in the treatment of trauma has been particularly emphasized. Because of the fact that practically all the male students are members of the armed services, special attention has been given to the treatment of fractures and other injuries of the locomotor system, which constitute about 70 percent of the battle injuries. This service has made a most important contribution in the instruction of potential medical officers.

The instruction in the orthopedic service under Professor Alan deForest Smith has continued as heretofore with particular emphasis upon problems of

rehabilitation and the correction of defects which might be seen in postwar medical surgical services. The plans of the New York Orthopaedic Dispensary and Hospital to move to the Medical Center were discussed earlier in this report. Close integration of orthopedic surgery with general medical and surgical units at the Medical Center promises to be a step of the first significance.

At Bellevue Hospital under Professor C. J. McGuire, Jr., the instruction of students in surgery has been carried on actively. The wide variety of emergency surgery and other problems which come to Bellevue Hospital have been fully utilized in the effort to emphasize proper, prompt, and adequate treatment of injuries, shock, burns, and other emergency problems. This type of instruction is proving to be invaluable.

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

New appointments in the Department of Urology include those of Dr. John K. Lattimer and of Dr. Thomas J. Sullivan as Instructors. Dr. Lattimer has been granted a leave of absence for military service.

The teaching of the undergraduates has been on the same basis as formerly, the students participating in the functions of the Department more than ever. The enthusiastic help of the students has made possible the hospitalization of more cases than in the previous year.

Collaboration of members of the staff with members of other departments in investigative problems has continued. Papers have been presented by all members of the staff before various medical societies and an additional number have been published in different medical journals.

## NEW YORK POST-GRADUATE MEDICAL SCHOOL

WILLARD C. RAPPLEYE, Director

There were 703 physicians enrolled in the Medical School during the year ending June 30, 1944, compared to 595 the previous session. The large variety of short, intensive courses offered during the past year continued to attract large numbers of physicians from civilian practice who could not have remained for longer periods. Physicians from forty-two states and sixteen foreign countries were enrolled.

The following table gives the number of enrollments in each of the teaching departments and in interdepartmental courses:

## REGISTRATION OF PHYSICIANS BY DEPARTMENTS

Dermatology and Syphilology . . . . .	80	Pathology . . . . .	10
Gynecology . . . . .	57	Pediatrics . . . . .	68
Medicine . . . . .	247	Radiology . . . . .	0
Neurology and Psychiatry . . . . .	28	Surgery (including	
Ophthalmology . . . . .	69	anesthesia) . . . . .	45
Orthopedic Surgery . . . . .	14	Traumatic Surgery . . . . .	61
Otolaryngology . . . . .	14	Urology . . . . .	8
		Interdepartmental courses . . . . .	81

The School Library has over 16,000 volumes, exclusive of pamphlets and reprints. There were about 12,000 visits of readers to the Library during the school year. Although these figures show some decline in the use of the Library, in a period when members of the teaching staff and house staff carried heavy responsibilities that left little time for study, or were in service, the librarians were able to give increased assistance in reference work and preparation of bibliographies. Again during the year most of the teaching departments gave substantial sums from their departmental funds to purchase more books and journals for the Library than the budget could provide.

In the laboratory devoted to bacteriophage service, under the Department of Bacteriology, observations have been continued in regard to the treatment of staphylococcal infections with bacteriophages, with particular attention to low-grade chronic infections of bones. The matter is of peculiar importance at the present time because we may expect to have many patients with infection of the skeleton in the near future.

The study of bacteriophages in the control of dysentery and cholera has been continued, and several confidential communications concerning this work have been transmitted to the Surgeons General of the Army and Navy. Bacteriophages prepared in our laboratories are in Africa and in the South Pacific. It seems not improbable that bacteriophages for the prevention of dysentery and cholera may be destined to play an even more important role in Burma than they did in North Africa.

The studies of bacterial endocarditis due to streptococci of the viridans group made substantial progress. The observations are now in course of presentation in a series of papers in the *American Journal of Pathology*.

The investigations have been transferred also to the clinical field with evidence of some success, and clinical arrest of endocarditis lenta has been achieved at the Post-Graduate in patients infected with *Streptococcus salivarius* by courses of therapy which included penicillin as the most important bacteriostatic agent.

Financial grants for aid in the research program have been received from

the American Medical Association, the Overly Research Foundation, the Josiah Macy, Jr., Foundation, the Lambert Pharmacal Company, the Lehn and Fink Corporation, and the Upjohn Company.

The Department of Dermatology and Syphilology continued the three-year course of training for specialization, though with somewhat decreased enrollment. By the end of the calendar year, the registrations in this long course were on the upgrade, with several physicians enrolled after having been discharged from Army service. There were no substantial changes in the curriculum.

In addition to conducting the regular teaching program, the members of the staff remaining at the Post-Graduate have continued their research programs outlined in some detail in last year's report. A large number of new investigative projects are under way and will be reported upon their completion.

The number of clinical courses offered by the Department of Gynecology was curtailed because there was not enough nursing and secretarial help available to maintain a full clinic schedule.

Efforts were still being directed to improving the technical staining methods of vaginal smears, particularly to increase the accuracy of the early diagnosis of malignancy. Several other investigations are under way in clinics and laboratories, dealing with such subjects as the action of ovarian lipoid extracts in the treatment of the menopause and of conjugated estrogens in the treatment of endocrine disturbance other than the menopause; the value of culdesopic examinations by direct observation of the pelvic viscera as a diagnostic method; and the therapeutic value of sulfathiazol in acid jelly in the treatment of trichomonas vaginalis and monilia infestations and in the treatment of dermatophytosis of the vulva.

The teaching activities of the Department of Medicine were centered on short, intensive courses in the various fields of internal medicine, and the registrations were gratifying. The seminar in internal medicine and the part-time courses were not given in the fall of 1943, but many of the one-week courses were offered twice during the school year to meet the demand for courses of this type. Every effort was made to maintain high teaching standards in all courses that were retained in the curriculum.

Because of the continued drain on the personnel of the Department, research work was further limited during the year to those branches in which it was possible to employ full-time paid workers. The Department now has six research assistants carrying on investigations. Many of the projects reported on last year have been continued. Financial assistance for their work was obtained from the Oliver Rea Scholarship Fund, the Josiah Macy, Jr., Foundation, the Nutrition Foundation, the Sandoz Chemical Works, and the Lederle Laboratories. Also, the Difco Laboratories made a grant for studies of the

therapeutic use of one of the purified protein fractions of the pituitary gland, and the New York Diabetes Association is supporting research on the effect of vitamin E on lipid metabolism.

In the fall of 1943, the Department of Neurology and Psychiatry instituted a new course in neurology and psychiatry in childhood in association with the Department of Pediatrics. An intensive course of one week, dealing with neurological diagnosis and treatment of adult patients in general practice, was first offered also in the fall. Although a number of additional members of the Department entered military service during the year, the remaining teachers continued to participate in many courses given by other departments and in interdepartmental courses.

A noteworthy feature of the work of the Department was the increase in the use of the electroencephalograph. In addition to numerous other research projects, members of the staff are studying the contribution of pneumo-encephalography, electroencephalography, and psychological examination to the diagnosis of mental deficiency.

In the Department of Ophthalmology, the short advanced courses for specialists dealing with specific phases of ophthalmology were very well attended during the year, with a number of applicants being turned away in the fall. The size of the classes was limited by the capacity of the various classrooms and laboratories. The course in surgery of the eye was expanded into a symposium of one week in which one day was spent at the Institute of Ophthalmology at the Columbia-Presbyterian Medical Center and another day at the United States Marine Hospital on Staten Island.

The Department of Orthopedic Surgery continued to give the short diagnostic course for general practitioners, and the seminar in orthopedic surgery for surgeons was lengthened. Members of the staff have continued their investigation reported before.

In the fall of 1943, a number of short advanced courses for specialists were arranged by the Department of Otolaryngology. Members of the teaching staff also participated in some courses in other departments and in the interdepartmental course in diagnostic procedures.

There has been a decline in enrollment in courses in the Department of Pathology during the war. The members of the Department continued to give lectures and demonstrations in interdepartmental courses, and in many courses offered by other departments. The course in pathology for the student nurses from Skidmore College was continued. Some research activities were continued as far as the laboratory facilities permitted.

The only course offered by the Department of Pediatrics during the war is a one-week intensive course surveying recent advances in pediatrics. In addition, this Department took part in the new course in neurology and psychiatry in childhood which was instituted in the fall of 1943.

The courses in the Department of Radiology were discontinued in 1943 because of wartime conditions. Members of the teaching staff have, however, taken a considerable part in courses offered by the clinical departments.

The Department of Surgery concentrated its teaching efforts on part-time advanced courses in special phases of surgery, which are planned for the convenience of surgeons in the metropolitan area. The classes for these courses were very well attended throughout the year. A new course, dealing with thyroid surgery and gastrointestinal surgery, was added to the curriculum in the fall. Members of the Department who were not carrying heavy teaching and clinical loads were able to continue some research projects.

In addition to continuing the diagnostic course for general practitioners and the seminar in traumatic surgery for surgeons, the Department of Traumatic Surgery during the summer of 1943 gave a full-time course of four weeks, and another course of six weeks, to medical officers of the Army, though most of the teaching staff had to forego their vacations. The Department also gave a series of lectures at the Medical Center to naval officers who were receiving instruction in industrial medicine at the DeLamar Institute of Public Health. A series of lectures on traumatic surgery was given for the Brooklyn and Long Island Chapters of the American College of Surgeons, and several lectures to the student nurses at the Post-Graduate. A series of five lectures was given in December to nurses and technicians about to leave for the war zones, and several members of the staff gave illustrated talks to medical officers at station hospitals in nearby Army camps.

Teaching was resumed on a formal basis in the Department of Urology, and a short course for specialists and a diagnostic course for general practitioners were offered. Since several members of the Department are in the Army and Navy, no research problems were completed.

The continued high enrollment in the School under war conditions indicates the important function of the Post-Graduate in the continuation education of physicians in this country. Even under the greatly increased demands upon practitioners, many doctors take the time to come to the School and Hospital for the latest information on diagnosis and treatment. A number who have been relatively inactive are now taking refresher courses in order to help meet the medical needs in local communities.

The maintenance of the wide range of research programs essential to any teaching institution is another source of gratification. While many important investigations must be curtailed or postponed because of the absence of staff members in the military services, a considerable number of promising studies are being carried forward. Some of these are of high merit and show what can be done in spite of limitations in personnel, laboratory facilities, and budgets for the support of research. The contributions in both original investigations and in teaching are a tribute to the interest, vigor, and ability of the staff. It



is earnestly to be hoped that resources commensurate with their efforts and capacities may be provided so that the valuable work of the Post-Graduate may be continued and expanded.

The demand for long-term courses from South and Central American physicians is growing and insistent. Our present facilities and teaching programs are not especially adapted to that type of teaching, which requires intensive supervision and direction of scientific and clinical instruction.

The part that this institution is to play in the educational pattern of the postwar period is under active discussion in the teaching staff. Most of the young physicians going into the military services are securing an abbreviated, accelerated professional education. Most of them will wish, on discharge from the Army or Navy, to make up their deficiencies and to secure further preparation for civilian practice. Large numbers will seek hospital residencies and long-term intensive training. We shall be able to help in that phase of the problem to the extent of our own house-staff opportunities.

There is every reason to believe that the training for specialization will continue after the war to be focused primarily upon hospital residencies and basic scientific preparation in each specialized field of practice. The impetus in this direction given by specialty boards, the Advisory Board for Medical Specialties, medical associations, hospitals, and educational bodies is likely to carry into the future. Many returning doctors, however, will wish to take short courses in different fields which will equip them with up-to-date knowledge of newer developments in medicine needed for civilian practice. For this group the Post-Graduate should make plans especially. But the demands cannot be met satisfactorily without modern clinics, laboratories, and teaching facilities. To this problem the Board of Directors is now giving serious consideration.

## SCHOOL OF TROPICAL MEDICINE<sup>1</sup>

Professor PABLO MORALES OTERO, Director

It is gratifying to report that there has been a marked improvement in those conditions that so affected the general functioning of the institution during the days after Pearl Harbor. Though the present war emergency is yet apparent on all sides, the gradual withdrawal of danger signs from these shores has brought about a letup in certain restrictions that affected the purchase of material and equipment essentially needed for research.

The induction into the armed services of all men of military age continues to confront the School with serious problems of replacement. Here, as everywhere else, the situation becomes critical when especially trained men are taken away. We have been fortunate in securing several efficient women doctors, who are helping to bolster up a somewhat depleted staff.

<sup>1</sup> For complete report see the Report of the Director of the School of Tropical Medicine.

The current year has seen an influx of visitors who have passed through our halls and whose visits we recall with pleasure. Among them were Dr. Lydia F. Roberts, of the University of Chicago; Dr. Pieter Honig, of Java; Mr. Horace R. Byers and Mr. D. Clay McDowell, both from the Institute of Meteorology of the University of Chicago; Dr. Etienne Montèstruc, Director of the Pasteur Institute in Martinique; Dr. Olympio da Fonseca (filho), of the Faculty of Medicine of the University of Brazil; Dr. Heitor P. Fróes, of Bahia, Brazil; Dr. Hobart A. Reimann, of Jefferson Medical College; Dr. Max Rheinstein, of the University of Chicago Law School; Dr. Henry E. Meleney, of the School of Medicine of New York University; Dr. Charles E. Shepard, from the Office of the Coordinator of Inter-American Affairs; Sir Rupert Briercliffe, Director of Development and Welfare in the British West Indies, with Dr. D. R. Huggins, of Trinidad; Surgeon General Thomas Parran; Miss Janet B. Pinney, Permanent Secretary to the American Social Hygiene Association; Dr. William F. Snow, of New York City; Dr. Hardy A. Kemp, of the College of Medicine of Ohio State University; Professors Earle B. Phelps and James T. Culbertson and Dr. Harry M. Rose, of the College of Physicians and Surgeons; and Mr. Oswald Garrison Villard, also of New York. Army and Navy medical men, either stationed in Puerto Rico or in transit through San Juan to their several destinations, have come in large numbers and have always evinced interest and surprise at the setup found here.

In our efforts to place the School of Tropical Medicine on the active list as a teaching center and to make it known throughout Latin America, we wish to commend the encouragement given us by Mr. Jaime Benítez, Chancellor of the University of Puerto Rico, when he created three fellowships for Latin American students.

The School of Tropical Medicine participated in the Regional Conference on Social Hygiene, which took place in San Juan on February 9, 1944, under the auspices of all insular and Federal health agencies as well as local civic organizations. Surgeon General Parran, who came to attend the Regional Conference, was guest speaker at the annual session of the Puerto Rico Public Health Association, an affiliate of the National Public Health Association, held on February 10, 11, and 12, 1944.

As adviser to the Puerto Rican delegation, Professor Morales Otero attended during several days of March the deliberations of the West Indian Conference, held under the auspices of the State Department of Barbados. Discussions centered around those problems of nutrition and public health common to the countries of this Caribbean basin.

This year marks a decade of service of the present Librarian, Mrs. Ana R. C. Velázquez. It is most gratifying to report that the growth of the physical plant is correlated with the marked increase in the use of the Library. Methods

of instruction and adjustment in schedules have permitted students to devote more time to their library problems. In addition, the use of the Library has been extended to some 102 persons not connected with the School.

Early in the year the Library entered upon an agreement with the University of Puerto Rico for interlibrary services. Frequent interlibrary loans have also been received from the library of the Agricultural Experiment Station at Río Piedras. Gifts from the Medical Library Association totalled 1,862 items and 126 complete volumes, showing an increase of 962 items and ninety-eight volumes.

The Library was the recipient of the collection of the late Professor William A. Hoffman containing, in the main, 136 bound books, of which 105 were titles new to the Library. Dr. Hoffman's collection also contained several thousand reprints. The Library also received a generous donation of 448 items, thirty complete volumes, and eleven books from Dr. D. H. Cook. The Library wishes to express its gratitude to other contributors listed in the complete report of the Director.

In the Department of Bacteriology and Immunology, under the direction of Professor Morales Otero, Major G. J. Dammin, of the Antilles Department Laboratory, United States Army, made a survey of the hemolytic streptococci to be found in troops, both continental and Island, stationed in San Juan and vicinity.

A study of the role played by group "A" beta-hemolytic streptococci in acute attacks of filariasis, conducted with the collaboration of Dr. F. Hernández Morales, of the University Hospital, corroborates previous observations that there is no significant correlation between the acute attack and the presence of beta-hemolytic streptococci in the throat of the patient.

In coöperation with Dr. James Steele, consultant in Veterinary Medicine to the United States Public Health Service, a survey of the organisms causing cow mastitis in Puerto Rico was begun, with interest centered on the streptococci producing disease of the udder and its possible implications to the public health.

With Dr. Ramón M. Suárez, of the Department of Clinical Medicine, a study of the effect of liver extract on the production of sheep agglutinins is nearing completion.

The Department performed laboratory tests for the University Hospital and Island physicians.

As in previous years, the Department coöperated in the regular teaching schedule of the Department of Public Health with a course in medical bacteriology that lasted ten weeks and was offered to laboratory technicians and sanitary engineers. The Department also assisted in giving a course in bacteriology to the nurses enrolled in the Department of Public Health and a shorter course on the bacteriology of water and milk to sanitary engineers.

Professor D. H. Cook, head of the Department of Chemistry since its organization in 1926, is on leave of absence at Columbia University, where he is in charge of all teaching in chemistry in the accelerated courses being offered by that University to the Army and Navy. Professor C. F. Asenjo is the acting head of the Department at the School.

The projects which the Department has now been conducting for several years in coöperation with the Agricultural Experiment Station include the study of the vitamin content and composition of native foodstuffs.

The work on nutrition, under the direction of Professor Marianne Goettsch, has continued to emphasize the vitamin-E diet requirement. Professor Goettsch has been very active in popularizing the subject of nutrition through articles and informal talks and has coöperated with Dr. Lydia F. Roberts, of the University of Chicago, in organizing the nutrition workshop.

The new Clinical Research Laboratory of the Department of Clinical Medicine is now fully organized with a staff consisting of Dr. Hazel E. Munsell, in charge, and the Misses Ana María Cuadros and Adelaida Elías, as assistants.

The research of this Department under the direction of Professor Ramón M. Suárez during the year can be divided as follows: studies of sprue and other tropical disorders, studies of blood dyscrasias, and studies of deficiency states.

Professor Suárez collaborated in the teaching activities of the School by offering a course of lectures on malaria, sprue, and schistosomiasis to a group of officers of the Medical Corps of the armed forces. In addition, he lectures on hematology to the students enrolled in the course in medical technology and to the nurses training in public health. These last lectures covered the fields of infant feeding, avitaminosis, diarrheal disorders, intestinal parasitism, growth and development.

The Blood Bank, under the direction of Dr. Eduardo Montilla, has continued to function with a fairly constant average of sixteen donors a day, which represents an increase of 60 percent over the daily average of last year.

With the assistance of Dr. J. Oliver González, of the Department of Medical Zoölogy, and of Dr. Caroline Kreiss, of the University Hospital, the preparation of anti-Rh serum by the inoculation of guinea pigs and rabbits with washed rhesus monkey cells was again attempted this year.

The Resident Staff of the University Hospital is now made up of Dr. F. Hernández Morales as Medical Director, Dr. Carlos Calero Molina and Dr. Enrique Pérez as Resident Physicians, Drs. Caroline G. Kreiss, Providencia Castro, and Sophie Trent as Interns. Miss Ruth A. Mercer occupies the posts of Director of Nurses and Hospital Administrator.

During the period from July 1, 1943, to March 31, 1944, 608 patients were admitted to the University Hospital. The average number of patients per day was 35.8, with an average of sixteen hospital days per patient; percentage

of occupancy was 59.6. Several new clinics were opened: a schistosomiasis, a filariasis, a sprue, and a nutritional disorders clinic.

On the death of Dr. William A. Hoffman, former head of the Department of Medical Zoölogy, Dr. J. Oliver González was appointed by Columbia University as Assistant Professor of Parasitology and head of the Department.

Preliminary work has been undertaken on the problem of the relation between infections with animal parasites and blood agglutinins. Another research problem on the relation between parasitic infections and blood agglutinins is enlightening. In coöperation with Dr. Eduardo Montilla, of the Blood Bank, a short study showing the inhibiting action of the ascarid polysaccharide on other blood agglutinins was commenced.

The work on problems of immunity to *Wuchereria bancrofti* infections, in collaboration with Major Z. T. Bercovitz, of the United States Army Medical Corps, resulted in the preparation of an antigen by concentrating the microfilariae of this parasite. A study of the incidence of microfilariae in cases of filariasis coming to the clinic is under way with Dr. F. Hernández Morales, of the University Hospital, as collaborator.

Investigations in schistosomiasis have emphasized two main aspects: (1) study of the biology of the intermediate host, *Australorbis glabratus*, and (2) observation on the intradermal and precipitin reactions to antigens made from the cercaria and the adult forms of the parasite. This work was conducted with the coöperation of Professor Marianne Goettsch, of the Department of Chemistry.

Work on the life cycle of *Platynosomum fastosum*, the liver fluke of the cat, has shown decided progress under the direction of Mr. José F. Maldonado. Work on the life history and biology of *Tamerlanea bragai*, the kidney fluke of the pigeon and a trematode that is little known, was completed this year, thus establishing a cycle of some two weeks from the time this trematode is ingested by the pigeon and the time it attains adult form.

Miss Josefina Acosta has commenced work on the immunological diagnosis of *Endamoeba histolytica*, based on detecting antigen rather than antibody in the serum of the infected host. Miss Acosta is also working on a problem of immunity to infection with *Strongyloides stercoralis*, with special reference to the possible relationship that may exist between immunity acquired to the infection and the development of the free living generation.

Captain Harry S. Pratt, of the United States Public Health Service, continued his study on the Puerto Rican anophelines, commenced a year ago with the collaboration of the late Professor William A. Hoffman.

Lieutenant Walter L. Newton, of the National Institute of Health, remained for nine months in the Department working on a study of mosquito transmission of *Wuchereria bancrofti*.

The teaching activities of the Department of Medical Zoölogy increased

greatly over the past year, four courses being given as compared to one for last year. A ten-week course was offered to the group of students enrolled in the course in medical technology. Three two-month courses were also offered to two groups of health inspectors and to one group of public health nurses. In addition, a series of lectures on parasitology was given to continental members of a camp of Conscientious Objectors working at Luquillo, Puerto Rico. Other students have also come at one time or another during the past year for individual instruction.

In the Department of Mycology and Dermatology, of which Professor A. L. Carrión is the head, researches on the following are being conducted: chromoblastomycosis, dermatomycosis, granuloma inguinale, and a general survey of fungus diseases in Puerto Rico.

Dr. C. A. Krakower, Assistant Professor of Pathology, resigned in November of last year to take up a new post at Tulane University in Louisiana. Dr. Guillermo M. Carrera Benítez was appointed Associate in Pathology and first assistant to Professor Enrique Koppisch, the head of the Department. Research on typhus fever and Weil's disease are the major projects of the Department.

The departmental teaching consisted of ten lectures delivered before medical technologists and sanitary engineers of the Department of Public Health on the spirochetes and the rickettsiae.

The organization of the Department of Public Health, under the direction of Professor Guillermo Arbona, was completed during the year. Miss Celia Guzmán was appointed Instructor in Public Health Nursing, Mr. José Rivera León, as Assistant Professor of Sanitary Engineering, Mr. Orlando Bonilla, as Administrative Clerk and Laboratory Assistant, and Miss Edna S. McKinnon, as Assistant Professor of Public Health Nursing. Professor Earle B. Phelps was appointed Visiting Professor of Sanitary Science for a period of three months.

Regular courses in public health were offered to public health engineers, public health nurses, and medical technologists and were commenced on September 7, 1943. A total of thirty-six students registered.

The course, Public Health Nursing I, was commenced during the present month for special students. The total enrollment was twenty-seven.

Plans for the coming academic year are taking into account a doubling of the year's enrollment. Postgraduate courses leading to a Master of Science in Public Health and a Master in Sanitary Science will be offered, together with the already established courses for public health nurses and laboratory technicians.

Short-term courses were offered for the first time to sanitary inspectors. Of the nineteen students who registered, eighteen completed the work satisfactorily. A second group of twenty students enrolled for a similar course in

November, 1943, and included ten men from the Republic of Haiti sent under the auspices of the Office of the Coordinator of Inter-American Affairs. All finished the course to the satisfaction of the Department. In all, 102 students were registered in the Department during the year.

The Department has coöperated at all times with the local offices of the United States Public Health Service and the Insular Health Department in studying problems affecting the public health of the Island. A short three mornings' course on cross connections was given to field personnel of the San Juan Aqueduct. A short course on food handling has been prepared and will be offered, first, to the employees of the United States Public Health Service Marine Hospital and, later, to the personnel of the University Hospital. Members of the Department gave a course in public health and hygiene to pharmacy students and another to social workers enrolled in the University of Puerto Rico.

Professor Earle B. Phelps gave an open course in sanitary science consisting of twelve two-hour lectures, which was attended by sixty-five persons, most of whom were members of the engineering profession in Puerto Rico.

Coöperation was also extended to the Departments of Pathology and Bacteriology in studying the epidemiology of typhus fever in Puerto Rico. Tabulation of data on an intestinal parasite survey in Trujillo Alto was completed.

Although the conditions of last year—an inadequate maintenance budget, food shortages, and high prices that make for unsatisfactory diet for the monkeys—are yet prevalent in the Santiago Primate Colony, the Colony is still quite active as regards its animal population. Mr. M. I. Tomilin remains in charge. The annual health check-up was undertaken during the year. The Director of the Colony has worked, as always, under unsurmountable difficulties to keep the colony together and has at all times shown almost superhuman enthusiasm on its behalf. Last year, he was commissioned by the Army to transport to the United States for research connected with the war effort some 100 monkeys destined for the University of Rochester. After a fourteen-day trip through submarine-infested seas, Mr. Tomilin succeeded in delivering safely, without a single death, the animals entrusted to his care.

After much thought and, because of the uncertain future that has always loomed over the project, the Committee-in-charge decided to permit the transfer of the Santiago Primate Colony to the Insular Health Department, in the belief that its future will be assured there and its potentialities put to good work.

As shown in this report, all activities of the School have continued uninterruptedly during the year in spite of the very trying circumstances through which Puerto Rico is passing. The staff of the School carried on with more enthusiasm and as much loyalty as before. The people of Puerto Rico continued their faithful support of the School. Coöperation with the Insular

Health Department was stimulated and brought about the expansion of our own Department of Public Health. As mentioned before, the School is now offering the facilities of this Department to the Committee on Inter-American Affairs in training groups from countries bordering the Caribbean whose environmental conditions are more or less like those existing here.

Publications of the staff of the School of Tropical Medicine number forty-two for the year.

Respectfully submitted,

WILLARD C. RAPPLEYE, M. D.

*Dean*

*June 30, 1944*

PROFESSIONAL STAFF ON LEAVE FOR MILITARY  
OR OTHER NATIONAL SERVICE

1943-44

*ADMINISTRATION*

Vernon W. Lippard

*ANATOMY*

B. William Glick

Richmond L. Moore

Raymund L. Zwemer

*BACTERIOLOGY*

Norman Molomut

Theodor Rosebury

Murray Sanders

*BIOCHEMISTRY*

Elvin A. Kabat

*CANCER RESEARCH*

Milton J. Eisen

*DELAMAR INSTITUTE*

Bernard M. Blum

John M. Henderson

Ernest L. Stebbins

Stafford M. Wheeler

*DERMATOLOGY*

J. Malcolm Bazemore

J. Gardner Hopkins

Robert R. M. McLaughlin

*MEDICINE*

George Baehr

Frederick R. Bailey

Otto S. Baum

Siegfried Berthelsdorf

Hylan A. Bickerman

Stuart S. Blauner

Daniel N. Brown

Norton S. Brown

Howard G. Bruenn

Joseph B. Bruné

George A. Carden, Jr.

Henry A. Carr

John L. Caughey, Jr.

Henry P. Colmore

Crispin Cooke

John K. Curtis

Louis M. D'Esopo

C. Dary Dunham



Walter L. Evans  
 C. Louis Fincke  
 Shirley C. Fisk  
 Charles S. Flood  
 Julian M. Freston  
 Charles L. Gilbert  
 William H. Gillespie  
 Thomas H. Gleeson  
 J. A. Clinton Gray  
 Frederick K. Heath  
 John L. Kantor  
 Kenneth Kelley  
 Yale Kneeland  
 Herman Lande  
 Michael J. Lepore  
 James Liebmann  
 Putnam C. Lloyd  
 Thomas T. Mackie  
 Morton F. Mark  
 Eleanor Martin  
 Arthur M. Master  
 David D. Moore  
 Norman W. Osher  
 Allen A. Parry  
 Joseph Post  
 William D. Province  
 Charles A. Ragan, Jr.  
 Oscar D. Ratnoff  
 Rowland Richards  
 John L. Riker  
 Theodore B. Russell  
 Albert C. Santy  
 Ralph F. Schneider  
 Paul B. Sheldon  
 William B. Sherman  
 Howard B. Shookhoff  
 DeWitt Hendee Smith  
 Hamilton Southworth  
 William H. Stearns  
 Herman Tarnower  
 Edward S. Tauber  
 Joseph C. Turner  
 Kenneth B. Turner

T. Lloyd Tyson  
 Chester H. Whitney  
 Herbert B. Wilcox, Jr.  
 Carl R. Wise  
 Theodore P. Wolfe  
 Judah Zizmor

### NEUROLOGY

Ben H. Balser  
 Norman Q. Brill  
 Fritz Cramer  
 Stanley M. Dillenberg  
 Henry H. Drewry  
 Leon N. Goldensohn  
 Desiderius Groszberg  
 Clarence C. Hare  
 Warren V. Huber  
 Walter O. Klingman  
 Charles A. McKendree  
 John M. McKinney  
 Rollo J. Masselink  
 James L. Pool  
 Leo Rangell  
 Samuel Reback  
 Albert A. Rosner  
 John E. Scarff  
 Nathaniel E. Selby  
 Carmine T. Vicale

### NURSING

Dorothy K. Hagner  
 Isabel G. Harrell  
 Ella Kauffman  
 Jessie M. A. Mutch  
 Marjorie Peto

### OBSTETRICS AND GYNECOLOGY

John H. Boyd  
 Charles Lee Buxton  
 Michael A. Cassidy  
 Eugene S. Coler  
 John C. Kilroe

James R. Montgomery  
Clinton P. O'Connell  
William E. Pollard  
John B. Rearden  
Leo Wilson

### *OPHTHALMOLOGY*

C. Gregory Barer  
James Boyd  
Alson E. Braley  
Gordon M. Bruce  
A. Gerard DeVoe  
J. Vincent Flack  
Edward Gallardo  
William H. Hanna  
John S. McGavic  
John P. Macnie  
Phillips Thygeson  
Donald E. Tinkess

### *OTOLARYNGOLOGY*

James W. Babcock  
Daniel C. Baker, Jr.  
Edwin B. Bilchick  
Arthur J. Cracovaner  
Sylvester Daly  
Edmund P. Fowler, Jr.  
Martin A. Furman  
Fred J. Hunter, Jr.  
Robert L. McCollom  
Bela Marquit  
Page Northington  
George O'Kane  
Lee R. Pierce

### *PATHOLOGY*

Robert A. Kritzler  
Hans Smetana

### *PEDIATRICS*

Arthur F. Ackerman  
George B. Bader

John M. Brush  
Sidney S. Chipman  
Harold W. K. Dargeon  
Richard L. Day  
John R. Gilmour  
Richard G. Hodges  
Robert E. Jennings  
Samuel Karelitz  
Aildred A. Macdonald  
James H. Maroney  
S. Dow Mills  
Ralph E. Moloshok  
Milton Singer  
Daniel A. Wilcox  
Charles L. Wood

### *PHARMACOLOGY*

Solomon Disick  
Alan Leslie  
Leo Parmer  
Clifford L. Spingarn

### *PHYSIOLOGY*

Harold A. Abramson  
Kenneth S. Cole  
Howard J. Curtis  
Joseph H. Holmes  
Octa C. Leigh, Jr.  
Elizabeth E. Painter

### *PSYCHIATRY*

Benjamin Lee Allen  
Walter Briebl  
Edith M. Buyer  
Frederick W. Dersheimer  
George A. Jervis  
John P. Lambert  
William S. Langford  
Zygmunt A. L. Piotrowski  
Florence Powdermaker  
Stephen M. Smith  
Joseph Zubin

*RADIOLOGY*

Robert P. Ball  
Murray M. Friedman  
Arthur F. Hunter  
Lawson E. Miller, Jr.  
Eric J. Ryan

*SURGERY*

James F. Bagg  
Frank B. Berry  
M. Renfrew Bradner  
Dwight B. Fishwick  
Robert S. Grinnell  
William G. Heeks  
Maurice J. Hickey  
Stephen S. Hudack  
Vincent M. Iovine  
Cornelius J. Kraissl  
J. Gordon Lee  
Richmond L. Moore  
William Barclay Parsons  
Howard A. Patterson  
Louis M. Rousselot

Rudolph N. Schullinger  
Edward B. Self  
Lawrence W. Sloane  
Kenneth F. Smith  
Barbara B. Stimson  
Frank E. Stinchfield  
James E. Thompson  
Carnes Weeks  
David M. Weeks  
Robert H. Wylie

*ORTHOPEDIC SURGERY*

T. McDowell Anderson  
Frederick L. Liebolt  
T. Campbell Thompson  
Melvin B. Watkins

*UROLOGY*

Leonard A. Hallock  
Charles T. Hazzard  
John Kingsley Lattimer  
Alexander Preston  
John N. Robinson



# Columbia University

IN THE CITY OF NEW YORK

## Report of the Dean of the School of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1945



COLUMBIA-PRESBYTERIAN MEDICAL CENTER

168TH STREET AND BROADWAY

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# SCHOOL OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1945

*To the President of the University*

SIR:

I have the honor to submit the annual report of the activities of the School of Medicine for the academic year 1944-45. Due to the accelerated program, the degree of Doctor of Medicine was awarded twice during the academic year: on September 28, 1944, and on June 29, 1945.

For the period July 1 to September 28, 1944, 468 students were enrolled in the regular course of instruction for the degree of Doctor of Medicine, distributed as follows:

First year . . . . .	120
Second year . . . . .	110
Third year . . . . .	115
Fourth year . . . . .	123 <sup>1</sup>

At the close of that period 122 students were awarded the degree of Doctor of Medicine.

On October 2, 1944, a new class was admitted and the enrollment for the period October 2 to June 28, 1945, was 466<sup>2</sup> distributed as follows:

First year . . . . .	120
Second year . . . . .	115
Third year . . . . .	116
Fourth year . . . . .	115

The degree of Doctor of Medicine was awarded to 114 students on June 28, 1945.

There were more than 1,200 applicants for admission for the class beginning October 2. The students had prepared in 157 different colleges and universities. The class admitted October 2 had prepared in thirty-five colleges. The graduating class of September 28, 1944, obtained internships in forty-five different hospitals in all sections of the country. The June 28,

<sup>1</sup> Includes 1 Rockefeller Exchange student.

<sup>2</sup> Includes 3 Rockefeller Exchange students.

1945, graduating class members will intern in forty-eight hospitals. Thirty students who were registered under the Graduate Faculties of the University took their work at the Medical School during the year. Instruction in the medical sciences was provided as usual for the students of the School of Dental and Oral Surgery. Ten students were enrolled in the DeLamar Institute of Public Health. The February registration in the Department of Nursing was as follows:

First year . . . . .	110
Second year . . . . .	128
Third year . . . . .	84
	<hr/>
Total . . . . .	322

There were awarded, in addition to the degree of Doctor of Medicine, nine of Master of Science in public health, sixty-eight of Bachelor of Science (nursing), and two of Doctor of Medical Science.

Dr. George L. Curran, who was graduated in September, 1944, was the recipient of the Dr. Harold Lee Meierhof Memorial Prize, which is awarded to the student who, in the opinion of the Professor of Pathology, did the best work in the field of pathology during the year. The Dr. William Perry Watson Prize, given to the member of the graduating class showing the most efficient work in the study of the diseases of infants and children during the medical course, was awarded to Dr. Virginia C. Nichols, who was graduated in September, 1944. Dr. J. P. Cole, class of September, 1944, was given the Janeway Prize, awarded to the graduate who, in the opinion of the Faculty, has ranked highest in efficiency and ability. Dr. David A. Goldthwaite, who was graduated in June, 1945, was awarded the Dr. William Perry Watson Prize. The Janeway Prize was awarded to Dr. Samuel Dvoskin, who was graduated in June, 1945.

Due to the Army Specialized Training Program and the Navy College Training Program, there was less need for scholarship aid than in peace times. An average grant of \$364 was made to twenty-five students. These awards were made to women students and men students who were not physically qualified for the Army and Navy training programs and who under ordinary circumstances would work during their vacation periods but were unable to do so due to the accelerated program.



During the past year, postgraduate courses were given to 1,746 physicians, including thirty-five army officers. The enrollment of civilian physicians was as follows:

Bellevue Hospital . . . . .	25
Margaret Hague Maternity Hospital . . . . .	11
Montefiore Hospital . . . . .	74
Mount Sinai Hospital . . . . .	319
New York Eye and Ear Infirmary . . . . .	101
New York Post-Graduate Medical School . . . . .	872
Presbyterian Hospital and Medical School . . . . .	303
Symposia at affiliated hospitals . . . . .	41

In addition to the postgraduate courses listed above, instruction for residents in the affiliated hospitals has continued throughout the year. During the past year seventy-three residents from affiliated hospitals received instruction in the medical science laboratories. Four graduate students have registered for the course in Psychoanalytic Medicine.

Appended to this report is a list by departments of members of the School staff who are in the armed services or engaged in special assignments outside the University. With the favorable developments in the war situation it is hoped that a number of key men of the teaching staff who are now in the service may return at an early date to resume their academic life. The services of a number of these men are urgently needed owing to the continued high pressure under which the staff are carrying on their activities.

Dr. George A. Perera, physician in charge of the Student Health Service, reports no essential change from the program carried forward from last year. He and his small staff are continuing to care for a total medical and dental student body of 644, including the Army and Navy trainees, 208 of the former and 188 of the latter. The usual routine care of all these students was covered in a highly satisfactory manner with the necessary detailed reports for the Army and Navy with respect to their own trainees. Changes in the physical arrangements made last year have greatly facilitated the health services to the students.

With profound sorrow we report the death on April 27, 1945, of Martin H. Dawson, Associate Professor of Clinical Medicine, after a long illness. Dr. Dawson has made invaluable contributions in the fields of bacteriol-

ogy and chemotherapy and was one of the outstanding members of the staff.

Equally regrettable was the death of one of our great leaders, William W. Herrick, Professor of Clinical Medicine and President of the New York Academy of Medicine. Dr. Herrick had long been associated with the School and participated in the teaching program for many years.

A younger member of the staff, Frank A. Nobiletti, also died during the year after a short illness. Dr. Nobiletti was one of the promising younger men in Surgery. Another great loss was that of Dr. Stafford M. Wheeler, who was killed in line of duty on April 13, 1945 in the European theater of War.

During the year Dr. I. Ogden Woodruff resigned as Director of the First Medical Division at Bellevue Hospital but has continued his active post on the academic staff. His long years of diligent service at Bellevue have been a large factor in the development of the First Division as one of the best teaching units in internal medicine. We are happy to report that he will continue to be available for teaching and assisting in the University program at Bellevue Hospital.

Dr. George H. Humphreys, Assistant Dean in charge of the postgraduate program, was obliged to resign because of the pressure of his own practice and responsibilities in the wards of the Presbyterian Hospital.

We regret very much to report the retirement of several of our professors. Dr. James W. Jobling, Executive Officer of the Department of Pathology and Director of the Pathological Services at the Medical Center, retired at the end of the academic year. Dr. Jobling has been a stalwart teacher of medical students at the College for many years. His counsel and suggestions were found invaluable in the building of the Medical Center, the development of the School of Tropical Medicine, and in establishing the entire program of the Medical Center. His wisdom and coöperation will be greatly missed. Fortunately he is in excellent health and we all trust that he will have many years of happiness in a well-earned retirement.

Other retirements of importance include that of Alwin M. Pappenheimer, for many years Professor of Pathology and an outstanding investigator and teacher, and Frederick B. Humphreys of the Department of Bacteriology, who has been identified with the Medical School for

many years. Miss Elizabeth Schramm, Medical Librarian, who has endeared herself to the whole staff of the hospitals as well as the Medical School for her cheerful coöperation and help in the Library, also retired at the end of the year.

In keeping with the changes in the statutes made by the Trustees, Professor Margaret Conrad has been elevated to the position of Associate Dean (Nursing), Dr. Bion R. East to the position of Associate Dean (Dental and Oral Surgery), Dr. Harry S. Mustard as Associate Dean (Public Health), and Dr. Aura E. Severinghaus from Assistant Dean to Associate Dean. Professor Harry B. van Dyke, Executive Officer of the Department of Pharmacology, assumed his active duties in October, 1944. He has already developed a strong program of research and graduate instruction.

The professorship of pathology and head of that department vacated by the retirement of Professor Jobling has been filled by the appointment of Professor Harry P. Smith, formerly of the University of Iowa. Professor Smith is one of the outstanding pathologists in the country and, after numerous conferences with our staff, he has begun his duties with enthusiasm and with the complete support and coöperation of the entire staff.

A number of promotions were made during the year, among which may be mentioned the following: Robert P. Ball to Associate Professor of Radiology; John Caffey to Associate Professor of Pediatrics; Gaston A. Carlucci to Associate Clinical Professor of Surgery; Henry W. Cave to Clinical Professor of Surgery; André Cournand to Associate Professor of Medicine; Edward J. Donovan to Associate Clinical Professor of Surgery; Goodwin L. Foster to Professor of Biochemistry; Charles L. Fox, Jr., to Assistant Professor of Bacteriology; Michael Heidelberger to Professor of Biochemistry; Paul F. A. Hoefer to Associate Professor of Neurology; Clay Ray Murray to Professor of Orthopedic Surgery; Dickinson W. Richards, Jr., to Professor of Medicine; Harry M. Rose to Assistant Professor of Medicine; Rudolph N. Schullinger to Assistant Clinical Professor of Surgery; John Scudder to Assistant Professor of Surgery; William B. Snow to Assistant Professor of Medicine; Warren M. Sperry to Associate Professor of Biochemistry; Raymond C. Truex to Associate Professor of Anatomy; William C. White to Clinical Professor

of Surgery; and Abner Wolf to Associate Professor of Neuropathology.

During the past year active discussion was held on the question of strengthening the program of dental education and research. After thorough consideration by the Advisory Committee on Educational Policy, the Faculties of Medicine and Dentistry, and the Committee on Education of the Trustees, the University decided to integrate the School of Dental and Oral Surgery under the Faculty of Medicine. The general purposes have been defined as an effort to strengthen the teaching of dentistry, to improve the opportunities for scientific research, to encourage the recruitment of larger numbers of superior students, and to relate the dental program more intimately with other activities of the University at the Medical Center.

For several years the question of modifying the name of the DeLamar Institute of Public Health has been under advisement. There appear to be a number of excellent reasons why the University should establish that Institute as a School of Public Health. Effective July first next, activities in public health will be correlated under the School of Public Health. At the same time the name of "DeLamar" will be perpetuated in the DeLamar Professorship of Public Health Practice.

In coöperation with the National Society for the Prevention of Blindness, the University conducted an intensive program in industrial ophthalmology, which attracted ophthalmologists from nearly all the medical schools in the country as well as industrial ophthalmologists from a number of leading industries. This program proved to be a real contribution in the important field of industrial medicine and may lead to the stimulation of better teaching in the medical schools of the country in this specialty.

#### FUTURE PLANS OF THE MEDICAL CENTER

The future plans of the Medical Center as worked out by the Faculty of the School and the Medical Board of the Hospitals at the Center have been studied in more detail during the year. It is gratifying to report steady progress in the formulation of the urgent needs of the immediate future. During the year the Board of Managers of the Presbyterian Hospital has authorized the expansion of Maxwell Hall to accommodate more nurses in that unit, thus relieving facilities on the ward floors of the

hospital proper. This is the first step in freeing the space necessary to provide for the combined Orthopedic and Fracture services.

The New York Orthopaedic Dispensary and Hospital has merged with the Presbyterian Hospital and will move to the Medical Center as soon as the necessary facilities can be prepared. These include the fifth floor of the Presbyterian Hospital for the ward services and corresponding floor in Babies Hospital for young children, also necessary additional private-patient accommodations in Harkness Pavilion, as well as an essential part of the extension of Vanderbilt Clinic to Broadway, on which plans are now well developed. The program when consummated will give to the staff of the Orthopaedic Hospital every opportunity to integrate their efforts with those of the other departments of teaching and research at the Medical Center and at the same time coördinate their activities with the services of the Presbyterian Hospital. The whole project is an important forward step in the over-all undertaking of the University and the Presbyterian Hospital.

The discussions with the City of New York relative to the development of the Public Health Center have ended with high success and gratification to everyone. The City authorities have decided and agreed to build a Public Health Center on the property between Riverside Drive and the West-Side Drive, which will include facilities for the laboratories of the City Department of Health, the Public Health Research Institute of the City of New York, Inc., the University School of Public Health, and a new hospital for tropical and contagious diseases. The staff of the hospital, under an agreement with the City, is to be nominated by the University. The building will accommodate the University teaching and research program in public health and promises to become one of the leading public health centers in the world. The generous support of the Josiah Macy, Jr., Foundation in inaugurating the program in tropical medicine adds further strength to this important project.

Studies have gone forward during the year on the possible expansion of the Dental School in order to strengthen further the teaching and research activities in that School. The decision of the Trustees during the year to integrate the School of Dental and Oral Surgery with the Medical Faculty has given great impetus to the closer correlation of dental teaching and research with the fundamental sciences and clinical

fields of medicine. These considerations take on added importance at the moment because of the expansion of Vanderbilt Clinic to Broadway now being actually planned by the Presbyterian Hospital. It is hoped in the development of the dental facilities that a noteworthy contribution can be made in the field of dental postgraduate education, particularly for dental officers upon discharge from the military services.

Perhaps one of the most urgent needs of the Medical Center is an adequate, efficient library. When the Medical Center was built a small medical library was provided. During the last fifteen years it has expanded over 250 percent. The attendance and circulation have increased about 700 percent. This urgent problem has been laid before the Trustees in the hope that plans may be formulated to bring this important element in medical education and research abreast of the needs of the School and hospitals at the Medical Center. The sites available for the construction of a modern library have been studied in relation to the various existing hospitals and institutions at the Center and the Florence Nightingale Hospital, the Public Health Center, the Hospital for Tropical Diseases, and the New York Orthopaedic Dispensary and Hospital.

Associated with the planning of a library is the question of an all-purpose auditorium. It is the consensus of opinion of the staff that such a facility is badly needed and would serve a most important educational purpose. It is suggested that plans be considered to place the auditorium on the first floor of the library building with the library and its stacks above the auditorium, the whole to be integrated with the future laboratory needs of the School.

Increasing the efficiency of hospital services, clinical research, graduate training, and the teaching of medical, dental, public health, and nursing students is dependent upon adequate modern laboratory facilities. Owing to a lack of funds at the time the Medical Center was built, the laboratories of a number of the departments were curtailed. The pressure of our scientific staff for more facilities is increasing steadily, particularly in the light of the developments in chemotherapy, biophysics, virology, physical medicine, cancer research, endocrinology, and many other fields in which new instruments and techniques of study, diagnosis, and treatment are being developed. Every one of the major clinical departments is handicapped in carrying on its program because of the crowded labora-

tory conditions. With the return of many medical officers to their teaching and research activities this condition will be further aggravated.

In working out the plans for the hospital expansion considerable attention has been given to the probable needs after the war of more accommodations for low-price private patients. Special consideration has been given to the nation-wide trend toward group practice units to provide economical medical care for self-supporting persons of moderate means either on a self-payment basis or prepayment medical care and hospital insurance. The matter of providing adequate staff and office accommodations for private patients is emphasized particularly by the responsibility of the University to provide professional staffs for the Florence Nightingale Hospital (350 beds) and the Hospital for Tropical Diseases (350 beds). These several factors need to be weighed thoroughly in formulating the building plans of the Presbyterian Hospital group. Associated also with this general question is the type of practice which many of the staff members may elect after the war if opportunities are available. Many of these men needed for the University program will wish to concentrate their office practice, hospital work, clinical services, teaching, and research activities at the Medical Center. The accommodations necessary for such arrangements will have to be considered.

#### WAR TIME MEDICAL COURSE

With the favorable outcome of the war in Europe and the prospect of speeded up activities in the Pacific the Faculty is giving serious consideration to the adjustments in medical teaching which will be necessary when the war ends. Plans are being drawn for a return to peacetime basis when the opportunity arises.

It is pointed out elsewhere in this report that the enrollment for the class entering in October, 1945, is complete. Some of the military trainees in this class have had only the minimum preparation, but the majority have had three or more years of college work under wartime conditions. There is some uncertainty at this writing as to the quality of students that may be available for 1946. However, on the basis of present information and reasonable prediction, it is indicated that there will be about 1,350 applicants for admission to the class entering in 1946, including a substantial number of women and increasing numbers of students dis-

charged from the military services who are now in college or will return to college to complete their premedical preparation.

Much has been said in criticism of the accelerated program of the medical schools, but there is a common misunderstanding regarding the actual situation. In normal times the usual medical school course covered four academic years of thirty-two weeks each, a total of 128 weeks of instruction during four different academic years. These are the basic requirements for licensure in every state. The accelerated program worked out in 1941 and put into effect shortly after Pearl Harbor originally contemplated placing this course of 128 weeks into three calendar years, thirty-six months having been agreed upon by the licensing boards of the various states as a minimum period regarded as satisfactory for medical training. However, owing to the regulations of the Army and Navy on matters of furloughs it was necessary to institute an instructional program of forty-eight weeks in each calendar year. Thus the medical course was expanded from 128 weeks of instruction to 144. Contrary to the general belief, the actual required instruction of the medical course has been increased by sixteen weeks in order to conform to Army and Navy regulations and the requirements of the licensing boards of the different states.

The greatest difficulty of operating the accelerated program has not been with the students but has been due to the fact that about one third of the teaching staff have gone into the military services. This means that two thirds of the normal staff are obliged to teach twelve months of the year instead of the usual eight or nine. Not only have the clinical staff been obliged to do more teaching but they have had to care for more patients, chiefly patients of community doctors who have gone into the military services. The critical situation in the accelerated program has been primarily a staff matter rather than adjustments in the teaching schedules themselves.

The most serious difficulty of the accelerated plan has occurred in the hospital internships. These have been shortened against the advice of the medical schools, but the postwar plans discussed elsewhere in this report indicate the earnest effort that will be made to recapture that training. This handicap in medical training is greatly exaggerated in the instances of many medical officers who in the military services have been assigned to duties that have very little medical responsibility. Many of



them complain of intellectual and scientific stagnation and loss of knowledge and skill and, of greatest importance, loss of confidence in their ability as clinicians. It is the aim of our plan outlined elsewhere to help as far as possible to correct these handicaps.

#### POSTWAR MEDICAL EDUCATION

The primary responsibility of medical education in the national health program is that of producing a sufficient number of adequately trained physicians to meet the present and future medical needs of the entire population of the country. It is well to stress the future medical needs and methods of meeting them, and also to emphasize that education is concerned especially with preparation for the future. The objectives to be sought and the jobs to be done are multiple, since physicians in a modern society have diverse responsibilities for which medical education must recruit and educate its students.

A large majority of medical graduates engage throughout their lives in some form of clinical medicine or in activities requiring a knowledge of clinical medicine. The current trend is in the direction of specialization because of the growing body of knowledge and the special skills required for modern medical service which no single individual can master. In addition to private practice in one form or another it is well to note the increasing development of industrial medicine, not only in relation to occupational diseases and industrial accidents but also in the extension of general medical services. Large groups of individuals and their families are now associated with health programs concerned with the prevention of accidents and illnesses and the maintenance of maximum vigor and health. The increasing responsibilities of government for the care and treatment of patients are common knowledge. Not only is the government, in one form or another, undertaking the care of psychiatric, tuberculous, and other chronic diseases, but more recently it has begun the expansion of general medical services, particularly for servicemen and their families and in the fields of obstetrics and child care. The increasing sense of responsibility of municipalities for the care of the indigent sick has led to considerable increase in general hospitals maintained by such subdivisions of government.

Another field in which rapid expansion of opportunities for medical

personnel occurs is the public health services, federal, state, and local. New developments are also occurring in the public as well as in the private schools, in the various courts, and in forensic medicine.

Even after the establishment of peace, present indications are that numbers of doctors will be required in the military services, the United States Public Health Service, state and city health departments, in the various relief agencies, the Veterans Administration, in the programs for rehabilitation and convalescent care, in tropical medicine, and in a wide variety of other activities associated with national economic and social changes following the war.

A mere indication of the different fields of responsibility of the physician shows the variety of medical talents, skills, and interests for which medical education must prepare physicians to meet every phase of professional responsibility. There is also the need of special training in a wide variety of different fields which cannot possibly be included in the usual basic program of medical education. Specialization in the clinical fields alone has led to the creation of a number of specialty boards whose objectives in the public interest are to certify physicians who are adequately trained and competent in the several clinical specialties. Somewhat similar advanced training is being provided in public health, medical administration, and other fields of activity, since these fields of advanced training go far beyond the content of the medical course itself. All the advanced training is based upon completion of a basic preparation.

The content of the medical course must of necessity include the common denominator of all these special advanced fields of study. As graduate medical education develops it is assuming responsibility for a considerable part of the instruction earlier given in the specialties during the undergraduate medical course. The latter, in turn, has increasingly reduced its objectives to the presentation of basic principles and the common ground of general and specialized practice. It is possible to extract from the diverse specialized fields and the needs of general practice and public health the essential elements or common denominator that should be the core of the undergraduate medical course.

The adequate training of medical students in the techniques and knowledge required for mastery of this common denominator is far

from sufficient to meet the responsibilities of the physician. At least two major considerations must be taken into account. One is the necessity of inculcating in students an understanding of the patient as an organic or biological unit, not merely giving him a series of isolated skills and techniques required for diagnosis and treatment of disease. The emotional and psychological factors in many illnesses are as important, and frequently more important, than the demonstrable lesions of physical disability. Present-day medical education and practice have overemphasized the mechanical and technical aspects of medical science. Maladjustments of individuals in their social and economic relations and the diverse symptoms and illnesses that arise therefrom should constitute an important part of medical instruction.

A second phase of medicine to which inadequate attention has been given is the relationship of medical care to the social and economic problems of the individual and the community. Medicine today is as much of a social as it is a biological science. The doctor too frequently is regarded merely as a technician, and as such has not carried the influence he should have in local and national problems relating directly to the health and medical services required by the population. Yet the forms of medical practice, as well as the opportunities and emoluments that will accrue to the physician in the future, determine the types of individuals that will study medicine. It is all too apparent that the medical profession, so largely concentrating in the past upon its individual techniques and skills, has failed to produce a sufficient number of socially minded leaders qualified to contribute to the development of sound national and local planning for medical services.

These several considerations point clearly to the necessity of securing as complete an integration as possible of the underlying biological and health sciences and their application to the various clinical fields of medical care. They also emphasize the great importance of physicians being adequately trained in and familiar with current social and economic trends and the broad aspects of public service. It is clear that these various directions of development of medicine in present-day society call for a wide variety of preparation and intellectual equipment. These facts have an important bearing on the college preparation of students going into

medical studies and emphasize the need of diversity in preparation and a broad cultural and general education, rather than narrow preprofessional training in a few of the underlying laboratory sciences.

If medicine is to meet fully its responsibilities in our national life, it is going to be necessary to broaden the conception of what medical training and leadership means. The professional training must be closely correlated with general education and the other major divisions of the University.

#### RETRAINING FOR DISCHARGED MEDICAL OFFICERS

In response to inquiries from men in the services who are planning upon discharge to complete their hospital education or to take some post-graduate training before going into practice, the Faculty and its affiliated hospitals offer two different types of training.

The first is the long-term, full-time clinical training at the residency level, including advanced preparation in the basic medical sciences. Special long-term courses are also available in hospital administration, physical medicine, public health practice, and other fields. Every affiliated hospital is planning to increase the number of residents, consistent with available clinical material required for such training, and the Medical School will provide instruction in the related basic medical sciences for all the residents who wish to take such training and review. Appointments to the hospital resident services will be made as heretofore by the individual hospitals, usually for periods of one year or longer. This program is designed particularly for medical officers who graduated under the accelerated program of medical education and who had an abbreviated hospital training before entering military service.

The second is a series of short refresher courses in every branch of medicine. Certain of these courses are for general practitioners and others are for men already qualified in one of the specialties. Short courses are available in most of the affiliated hospitals. No University credit or certificates are granted for the short courses. Several hundred such refresher courses, usually from one to eight weeks in length, are already in operation and can serve well as the basis for expansion to meet the needs of many of the returning medical officers. They cover the various fields of general medicine (gastroenterology, cardiology, allergy, chest diseases,

metabolism, vascular disorders, arthritis, etc.), pathology, pediatrics, obstetrics, gynecology, dermatology, and neurology.

Instruction for qualified specialists is offered in the several fields of surgery, in anesthesiology, dermatology, internal medicine, neurology, neuropathology, obstetrics, gynecology, ophthalmology, orthopedic surgery, otolaryngology, pathology, pediatrics, psychiatry, radiology, tropical medicine, and urology.

As deceleration of the medical course becomes effective, there may be a period of a maximum of six months in which there would be no second- and possibly no third-year classes. It is possible that we may be able to set up a review course of four to six months that we have already outlined. However, we cannot do that satisfactorily while we have a full load of student teaching on the accelerated program with a greatly depleted teaching staff. Later on, as and if teachers are discharged, we may get some relief on the staff situation but all of our clinical facilities at the Medical Center are fully utilized in the instruction of the students and the increasing number of residents whom we expect to have before long. We are fully aware of the fact, however, that a large number of the recent graduates who most need further hospital training may not be discharged from the armed forces until some time in the future.

Most hospitals in the country which have residencies are planning to increase the number of such opportunities in order to offer additional training to former graduates of their own house staffs. Since the numbers of discharged officers will be large and many institutions will have to participate in the postwar retraining program, it is advisable for medical officers to communicate with the superintendent of the hospital or the director of the service on which they interned to learn of the plans. Many of the medical schools also are making arrangements to assist their former students, and it would be well for medical officers to ascertain the provisions being made by their own school.

Medical officers cannot make definite arrangements for their postgraduate training in advance of their discharge. As the date of discharge approaches, medical officers should communicate with their own schools and with the hospitals in which they interned in an effort to work out some satisfactory plan of further training for civilian life.

Later on, as demobilization advances, the medical schools will begin

the deceleration of the undergraduate teaching program, which will permit the staffs of the medical schools to take a more active part in the instruction of the postgraduate students. There will be more places available in the hospitals also because there will be a temporary period, as deceleration of the medical course becomes effective, when the number of medical graduates will be fewer than normal and less than the number of internships and residencies available, thereby affording further opportunities for refresher courses and long-term training.

Medical officers eligible for educational benefits under Public Law 346, the Servicemen's Readjustment Act of 1944 (so-called G.I. Bill of Rights), are advised to communicate with their local Veterans Administration office for information about tuition payments and other financial aid, also for statements of eligibility which must be presented to schools or hospitals. This school and its affiliated hospitals will coöperate with the Veterans Administration in putting the financial provisions into effect for those eligible for them.

#### THE SUPPLY OF PHYSICIANS

The attempt in recent months to create alarm over the possible shortage of doctors seems unwarranted. This attempt may have an unfavorable result because the public statements and presentations to members of Congress and others are creating an impression that there is a need for more facilities for medical instruction in order to meet an alleged future shortage of doctors. Facts do not seem to substantiate these assertions, and it would be unfortunate if the standards of medical education in the country were lowered or if new medical schools were created when there is no evidence that thoroughly qualified individuals have not normally been able to get into medical schools.

The country needs not more but better doctors and the more effective use of its physicians in meeting the health requirements of the nation. The sixty-nine approved medical schools in the United States are graduating each year in normal times a sufficient number of such physicians to meet the requirements of the country. The ratio of physicians in the United States to the population previous to the present war was approximately twice that of such countries as England, Denmark, Switzerland, and an even higher proportion than existed in Germany, France, and the

Scandinavian countries, all of which had reasonably adequate medical services. It seems reasonable to state that the number of physicians available in this country is entirely adequate for the medical needs of peace time and that there appears to be no justification for other than the normal expansion of medical education.

The above comments apply essentially to normal times. At the moment all the medical schools in this country are operating under the accelerated program worked out by the medical schools and have carried out the plan with the Army, Navy, and Selective Service. This accelerated program provides for instruction throughout the calendar year instead of the usual eight to nine months. The net result of this effort has been to increase the output of the medical schools by one third and to accelerate the graduation of these men from four to three years. During the period 1942-1948 the medical schools will graduate eight instead of six classes, adding an additional 10,000 (approximate) doctors more than normal.

Those responsible for the administration of the medical schools are not disquieted by the possible shortage of medical students in 1945 and thereafter. Any favorable development in the plans for even partial demobilization of the Army during the next year will produce not a shortage of medical students but an excess number of applicants. In view of the extra production of doctors during the current period and of the well-founded predictions of Selective Service Headquarters, that under existing programs the number of physicians in the country in 1949 will exceed 194,000, the ratio of doctors to the population will be about one physician to 733 individuals at that time.

There is every reason to believe that large numbers of ex-servicemen will wish to study medicine. Many of these young men are already partially qualified because in numerous instances they left their college training to go into the services. The medical schools are anxious to admit these men and to give them the very best possible training. This can only be done with full satisfaction to everyone concerned and to the country at large if the medical school faculties are adequate. It is, therefore, of great importance that the essential teachers in the medical schools who are now in the services be discharged at the earliest possible moment to return to their teaching posts. It is upon these men particularly that the

medical schools must rely to a considerable extent in the future to meet their obligations not only for undergraduate medical instruction but also to contribute to the re-education and completion of the preparation of many of the young doctors now in the service whose professional training has been interrupted or abbreviated. The early return of key teaching personnel is highly important if the medical schools are to discharge properly their several responsibilities in the immediate postwar era.

The problem associated with the supply of doctors for the country is not one so much of initial supply as it is of distribution. There are sufficient doctors in the country in peace time to render a satisfactory medical service in most communities. Certain areas of the country normally have more physicians than can be effectively employed. During the war emergency, of course, the number of civilian physicians temporarily is greatly reduced.

#### MEDICAL SERVICES

Modern medical knowledge is now so complex and requires so many different skills that no single individual can master the entire subject. Hence, specialization has developed and must of necessity lead to some form of group responsibility. The nucleus of modern medical care is the hospital center equipped to give full and complete medical, surgical, laboratory, nursing, dietary, and specialized services to patients and to provide at the same time those facilities required by physicians to carry on satisfactory modern medical practice.

The primary problem of the medical care in this country today is that of providing a reasonable number of hospital and group practice centers which not only will provide for comprehensive professional care in local communities but will serve as the vehicle for a more satisfactory distribution of well-trained young physicians. These younger graduates will not go into practice in local communities with any eagerness unless modern facilities for practice are available. It is in such institutions also that these younger graduates can be more effectively used than they are today. Perhaps the greatest waste of medical manpower and skill in our present system of medical service is that period of five to ten years after completion of hospital training when these young men and women are only partly occupied with the early stages of independent practice.

The greater development of hospital and group centers where young,



energetic, well-trained, and competent individuals could work effectively at a time when they can make their maximum contribution to public welfare would be an important addition to the health services of the country. There should be provided in such hospital centers adequate numbers of technical assistants and other aides who can do, under proper supervision, a great deal of the necessary laboratory and technical services, thus again conserving the time and talents of the highly trained group of young physicians for treating patients, for preventive medicine, and for continued self-development.

The success and long-term development of medical education in this country will require a constant supply of well-trained teachers and investigators. Many institutions would be able to make a far better contribution to the over-all program should financial aid be available on such terms that would not interfere with the scientific development of individuals and institutions or with the selection of men and women to conduct the educational programs. There are sufficient numbers of qualified young men and women who would be eager to continue a career in scientific medicine and in medical education should opportunities and a future be assured.

The present quality of medical training in this country is not surpassed anywhere in the world. This was true even before the war. Great opportunities lie ahead for contributions to the public welfare by the medical schools of the country provided they are not subjected to controls by the practicing profession or by government agencies which would hamper them in carrying out their long-term, broad public responsibilities. The source of supply of an adequate number of properly qualified and well-trained physicians should be jealously safeguarded in every possible way in order to insure during the future the annual output of the highest qualified physicians that can be produced anywhere in the world. The quality of such instruction and the morale of the staffs and students can be insured by the recognition by all responsible authorities of the indispensable function of a high quality of medical education in the national welfare.

Respectfully submitted,

WILLARD C. RAPPLEYE, M.D.

*Dean*

*June 30, 1945*

PROFESSIONAL STAFF ON LEAVE FOR MILITARY  
OR OTHER NATIONAL SERVICE

1944-45.

*ADMINISTRATION*

Vernon W. Lippard

*ANATOMY*

B. William Glick

Richmond L. Moore

Raymund L. Zwemer

*BACTERIOLOGY*

Norman Molomot

Theodor Rosebury

Murray Sanders

*BIOCHEMISTRY*

Erwin Brand

Elvin A. Kabat

*CANCER RESEARCH*

Milton J. Eisen

*DELAMAR INSTITUTE*

Bernard M. Blum

John J. Bourke

(from Jan. 1, 1945)

John M. Henderson

Ernest L. Stebbins

Stafford M. Wheeler

(to Apr. 13, 1945)

*DERMATOLOGY*

J. Malcolm Bazemore

J. Gardner Hopkins

Robert R. M. McLaughlin

*MEDICINE*

Frederick R. Bailey

Otto S. Baum

Hylan A. Bickerman

Stuart S. Blauner

Daniel N. Brown

Norton S. Brown

Howard G. Bruenn

Joseph B. Bruné

George A. Carden, Jr.

Henry A. Carr

John L. Caughey, Jr.

Henry P. Colmore

Crispin Cooke

John K. Curtis

Robert C. Darling

(from Mar. 1, 1945)

Louis M. D'Esopo

C. Dary Dunham

Walter L. Evans

C. Louis Fincke

Shirley C. Fisk

Charles A. Flood

Julian M. Preston

Charles L. Gilbert

William H. Gillespie

(to June 7, 1945)

Thomas H. Gleeson

J. A. Clinton Gray

Frederick K. Heath

John L. Kantor

Kenneth Kelley

Yale Kneeland, Jr.

Herman Lande

Michael J. Lepore

James Liebmann

Putnam C. Lloyd

Thomas T. Mackie

Morton F. Mark

Eleanor Martin

Arthur M. Master

David D. Moore

Norman W. Osher  
 Allen A. Parry  
 Joseph Post  
 William D. Province  
 Charles A. Ragan, Jr.  
 Oscar D. Ratnoff  
 Rowland Richards  
 John L. Riker  
 Theodore B. Russell  
 Albert C. Santy  
 Ralph F. Schneider  
 Paul B. Sheldon  
 William B. Sherman  
 Howard B. Shookhoff  
 Frederick H. Silberstein  
 (from Nov. 16, 1944)  
 DeWitt Hendee Smith  
 Hamilton Southworth  
 William H. Stearns  
 Herman Tarnower  
 Edward S. Tauber  
 Joseph C. Turner  
 Kenneth B. Turner  
 T. Lloyd Tyson  
 Chester H. Whitney  
 Herbert B. Wilcox, Jr.  
 Carl R. Wise  
 Theodore P. Wolfe  
 Dan Zahn  
 Judah Zizmor

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 Norman Q. Brill  
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 Stanley M. Dillenberg  
 Henry H. Drewry  
 Leon N. Goldensohn  
 Desiderius Groszberg  
 Clarence C. Hare  
 Warren V. Huber  
 Walter O. Klingman

Charles A. McKendree  
 John M. McKinney  
 Rollo J. Masselink  
 James L. Pool  
 Leo Rangell  
 Samuel Reback  
 Albert A. Rosner  
 John E. Scarff  
 Nathaniel E. Selby  
 Carmine T. Vicale

### NURSING

Elizabeth D. Bliven  
 Dorothy K. Hagner  
 Isabel G. Harrell  
 Ella Kauffman  
 Jessie M. A. Mutch  
 Marjorie Peto

### OBSTETRICS AND GYNECOLOGY

John H. Boyd  
 Charles Lee Buxton  
 Michael A. Cassidy  
 Eugene S. Coler  
 John C. Kilroe  
 James R. Montgomery  
 Clinton P. O'Connell  
 William E. Pollard  
 John B. Rearden  
 Alvin J. B. Tillman  
 Leo Wilson

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C. Gregory Barer  
 Alson E. Braley  
 Gordon M. Bruce  
 A. Gerard DeVoe  
 J. Vincent Flack  
 Edward Gallardo  
 William H. Hanna  
 Edward A. E. Hartmann  
 (from Jan. 1, 1945)

John S. McGavic  
 John P. Macnie  
 Phillips Thygeson  
 Donald E. Tinkess

### *OTOLARYNGOLOGY*

James W. Babcock  
 Daniel C. Baker, Jr.  
 Edwin B. Bilchick  
 Arthur J. Cracovaner  
 Sylvester Daly  
 Edmund P. Fowler, Jr.  
 Martin A. Furman  
 Fred J. Hunter, Jr.  
 Robert L. McCollom  
 Béla Marquit  
 Page Northington  
 George O'Kane  
 Lee R. Pierce

### *PATHOLOGY*

Hans Smetana

### *PEDIATRICS*

Arthur F. Ackerman  
 George B. Bader  
 John M. Brush  
 Sidney S. Chipman  
 Robert W. Culbert  
     (from Aug. 7, 1944)  
 Harold W. K. Dargeon  
 Richard L. Day  
     (returned Oct. 1, 1944)  
 John R. Gilmour  
 Richard G. Hodges  
 Robert E. Jennings  
 Samuel Karelitz  
 Aildred A. Macdonald  
     (returned Nov. 1, 1944)  
 James H. Maroney  
 S. Dow Mills  
 Ralph E. Moloshok

Milton Singer  
 Daniel A. Wilcox  
 Charles L. Wood

### *PHARMACOLOGY*

Solomon Disick  
 Alan Leslie  
 Leo Parmer  
 Clifford L. Spingarn

### *PHYSIOLOGY*

Harold A. Abramson  
 Kenneth S. Cole  
 Howard J. Curtis  
 Joseph H. Holmes  
 Octa C. Leigh, Jr.  
 Robert P. Noble  
     (from Apr. 1, 1945)  
 Elizabeth E. Painter

### *PSYCHIATRY*

Benjamin Lee Allen  
 Walter Briebl  
 Edith M. Buyer  
 Agnes Conrad  
 Frederick W. Dersheimer  
 George A. Jervis  
 John P. Lambert  
 William S. Langford  
 Zygmunt A. L. Piotrowski  
     (returned Sept. 26, 1944)  
 Florence Powdermaker  
 Stephen M. Smith  
 Joseph Zubin

### *RADIOLOGY*

Robert P. Ball  
 Murray M. Friedman  
 Arthur F. Hunter  
 Lawson E. Miller, Jr.  
 Eric J. Ryan

*SURGERY*

James F. Bagg  
Frank B. Berry  
M. Renfrew Bradner  
Dwight B. Fishwick  
Robert S. Grinnell  
William G. Heeks  
Maurice J. Hickey  
Stephen S. Hudack  
Vincent M. Iovine  
Cornelius J. Kraissl  
J. Gordon Lee  
William Barclay Parsons  
Howard A. Patterson  
Louis M. Rousselot  
Rudolph N. Schullinger  
Edward B. Self  
Lawrence W. Sloan  
Kenneth F. Smith

Barbara B. Stimson  
Frank E. Stinchfield  
James E. Thompson  
Carnes Weeks  
David M. Weeks  
Robert H. Wylie

*ORTHOPEDIC SURGERY*

T. McDowell Anderson  
Frederick L. Liebolt  
T. Campbell Thompson  
Walter A. L. Thompson  
Melvin B. Watkins

*UROLOGY*

Leonard A. Hallock  
Charles T. Hazzard  
John Kingsley Lattimer  
Alexander Preston  
John N. Robinson



# Columbia University

IN THE CITY OF NEW YORK

## Report of the Dean of the School of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1946



COLUMBIA-PRESBYTERIAN MEDICAL CENTER

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# FACULTY OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1946

*To the Acting President of the University*

SIR:

I have the honor to submit the annual report of the activities of the School of Medicine for the academic year 1945-1946. Due to the accelerated program, the degree of Doctor of Medicine was awarded on March 28, 1946, to 113 candidates.

For the period July 1, 1945, to June 30, 1946, students were enrolled in the regular course of instruction for the degree of Doctor of Medicine as follows:

First year (which entered October, 1945) . . . . .	114
Second year . . . . .	113
Third year . . . . .	115
Fourth year . . . . .	116

The war-time schedule of acceleration of medical and dental teaching has been completed during the year and the peace-time program will go into effect July 1, 1946, with certain modifications in the prewar calendar of instruction in the clinical years.

There were approximately 1,200 applicants for admission to the class beginning October 4. These applicants had prepared in 223 different colleges and universities. The class admitted October 4 has prepared in forty-six colleges. The graduating class of March 28 obtained internships in forty-two different hospitals in all sections of the country. Twenty-three students who were registered under the Graduate Faculties of the University took their work at the Medical School during the year.

In the School of Public Health the registration was as follows:

M.S. candidates (Hospital Administration) . . . . .	24
M.P.H. candidates . . . . .	37
Special students . . . . .	23

The registration in the School of Nursing was as follows:

First year . . . . .	112
Second year . . . . .	101
Third year . . . . .	107
<hr/>	
Total . . . . .	320

In the course for Occupational Therapists forty-nine students were registered and thirty-four students registered for the course in Physical Therapy.

The Dental School registration was as follows:

First year . . . . .	21
Second year . . . . .	47
Third year . . . . .	45
Fourth year . . . . .	43
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Total . . . . .	156

In addition to the degree of Doctor of Medicine the following degrees were awarded:

Med.Sc.D. . . . .	2
M.P.H. . . . .	28
M.S. (Public Health) . . . . .	1
B.S. (Nursing) . . . . .	83
B.S. (Physical Therapy) . . . . .	3
B.S. (Occupational Therapy) . . . . .	4

The Dr. William Perry Watson Prize, given to the member of the graduating class showing the most efficient work in the study of the diseases of infants and children during the medical course, was awarded to Drs. Russell S. Boles, Jr. and William R. Watson of the class of March, 1946. Dr. Lillian Recant, class of March, 1946, was given the Janeway Prize, awarded to the graduate who, in the opinion of the Faculty, has ranked highest in efficiency and ability.

With the end of the war-time program of student selection and assignment by the Army and Navy, the problems of peace-time admission here has returned. The number of applicants already is high (many times the number of annual openings in the first year class). With the liberal

provisions of government aid for ex-servicemen, the applications in the near future will be even greater. Dr. Aura E. Severinghaus has continued as Chairman of the Committee on Admissions, a responsible, arduous, and important office. Since the most important factor in medical education is the student, wise selection is vital to the future of the School. Only a small fraction of those applying can be accommodated and there are bound to be many disappointed applicants.

Certain changes in the curriculum of instruction are indicated. The Committee on Curriculum, of which Dr. Severinghaus is also Chairman, has been studying the problem during the year. Its recommendations are being put into effect, especially in the clinical teaching and integration, which will further strengthen the education of up-to-date physicians.

Due to the curtailment of the Army Specialized Training Program and the Navy College Training Program, there was more need for scholarship aid this year. An average grant of \$525 was made to twenty-eight students. A considerable number of future students will probably be eligible for benefits under the Servicemen's Readjustment Act of 1944, although many students may exhaust their allowances while still in college preparation. A few will be eligible for benefits under Public Law 16 and state veterans' scholarships. With the increased tuition and higher living expenses, however, the need of scholarship assistance will continue great, especially in the case of highly desirable candidates who have limited resources.

Dr. George A. Perera, physician in charge of the Student Health Service, reports that the basic functions of this Service have not changed. He and his small staff cared for a total medical and dental student body of 608 and forty-two graduate students. The usual routine care of all these students was covered in a highly satisfactory manner and includes complete physical examinations for all first year medical and dental students, routine chest x-rays for all first, fourth and transfer medical and dental students, daily consultation hours, home and emergency visits, all kinds of diagnostic and therapeutic tests, health certificates and Wasserman tests, as well as maintenance of student health records.

Dr. Perera concludes his able and understanding direction of the Student Health Service as of June 30. He will assume other duties in

the Department of Medicine. Dr. Albert R. Lamb will succeed him as Physician in Charge of the Student Health Service.

It is with deep regret that the following deaths are reported:

Anna V. Hughes, Professor Emeritus of Dentistry, on July 1, 1945

Ethel B. Gutman, Assistant in Medicine and Clinical Chemist, Presbyterian Hospital and Vanderbilt Clinic, on March 6, 1946

Charles M. Griffith, Clinical Professor of Otolaryngology, New York Post-Graduate Medical School, on October 9, 1945

James W. White, Professor of Clinical Ophthalmology and Executive Officer of the Department of Ophthalmology, New York Post-Graduate Medical School, on May 15, 1946

Charles E. Caverly, Assistant Clinical Professor of Obstetrics and Gynecology and Associate Attending Obstetrician and Gynecologist, Sloane Hospital and Vanderbilt Clinic on May 22, 1946

Rudolph Scharf, Assistant in Medicine and Assistant Physician, Presbyterian Hospital and Vanderbilt Clinic, on June 10, 1946

#### THE GRADUATE AND POSTGRADUATE PROGRAMS

Termination of the war resulted in an unusually heavy demand for both graduate and postgraduate instruction. Thousands of medical officers were released from the military services each month and the majority sought further training leading to specialization and completion of the requirements of the specialty boards or opportunities for reorientation before resuming civilian practice. Training of many of the recent graduates had been interrupted on entering military services. A serious effort has been made by hospitals and medical schools throughout the country to provide for reorientation or completion of their training at the time of their release. Residencies at affiliated hospitals were increased in number and facilities for instruction in the basic medical sciences at the medical schools were expanded.

Opportunity for advanced study in the medical sciences has, for several years, been provided by the University for residents in its affiliated hospitals. In the past, they have entered the laboratories individually or in small groups for various intervals, at different times in the year and on either a part- or full-time basis. Although flexibility in formulation of the

program of study for each individual is desirable and will be continued, increasing demand for instruction required some degree of organization. To meet this demand, a program of instruction covering a period of six months was arranged. It is adapted to the background, previous experience, and interests of each resident and the requirements of the various specialties.

Either research, group instruction, or a combination of the two may be elected. Residents who have the time, background, and interest are encouraged to investigate fundamental problems related to their specialties. The program of group instruction in the basic medical sciences is also arranged on an elective basis. No resident is required to follow a definite curriculum but may register for those courses which are in keeping with his requirements. Instruction is conducted in small groups and on a graduate level. Guided reading, seminars, demonstrations, and laboratory work are the basis for study but the success of the experience depends upon individual effort and sufficient freedom from clinical responsibilities to allow time for independent thought.

This program is in keeping with the trend toward reduction in emphasis on details relating to the specialties in both preclinical and clinical years of the undergraduate medical curriculum and a greater emphasis on the fundamental morphological and physiological principles which provide a sound basis for further study related to the specialties at the graduate level. The response of residents and attending staffs of the hospital to the further development of this program is most encouraging and an indication of an increasing interest in graduate medical education. The broadened and more extensive graduate residency program has been made possible through the generous grant from the W. K. Kellogg Foundation for a four year period.

Approximately two hundred postgraduate continuation courses for practicing physicians were offered at the New York Post-Graduate Medical School, the Mount Sinai Hospital, Montefiore Hospital, and other affiliated institutions during the year. Practically all classes were filled to capacity. Although the majority of veterans were admitted to courses previously in operation, a temporary program of instruction of two to six months was organized for graduates of the College of

Physicians and Surgeons and former residents in affiliated hospitals. These physicians were admitted to the wards, clinics and laboratories at the Medical Center and Bellevue Hospital, attended conferences, rounds and other activities and were encouraged to take part in the medical life of the services to which they were assigned. This type of instruction could never be carried out on a large scale but it provided an excellent review during the transition period between military service and civilian practice.

In response to the request of the Veterans Bureau, the Faculty has joined with the other medical schools of the City in a Deans' Committee which has the responsibility of organizing and directing the teaching and resident staff of the Kingsbridge Hospital, one of the largest Veterans Administration general hospitals. The whole plan is now operating admirably and affords assurance to ex-service patients there of the highest quality of medical, surgical, and specialty services and at the same time offers excellent opportunities for further training of about one hundred hospital residents, all former medical officers.

During the past year, postgraduate courses were given to 2,243 physicians, including thirty-five army officers. The enrollment was as follows:

<i>Hospitals</i>	<i>Number of Registrations</i>	<i>Number of Doctors</i>
Mount Sinai . . . . .	622	418
Montefiore . . . . .	618	246
Bellevue . . . . .	21	21
Margaret Hague . . . . .	64	64
Medical Center . . . . .	154	153
New York Post-Graduate . . . . .	1,896	1,220
New York Eye and Ear Infirmary . . . . .	140	121
Total . . . . .	<hr/> 3,515	<hr/> 2,243

#### POSTGRADUATE DENTISTRY

To help meet the demands, a program of postgraduate studies was set up under the direction of Professor Daniel E. Ziskin. Heretofore, oppor-

tunities for graduate study in the School of Dental and Oral Surgery were limited to the specialties of Orthodontics and Oral Surgery, with emphasis on clinical practice. During the year 1945-1946 these courses were augmented to include more basic training in related fields, and lectures and clinics by the staffs of various departments of the Medical School. The practical aspects of the teaching were strengthened by the rearrangement of schedules. The biological aspects of each subject were stressed. In addition, new courses were established in Periodontology and General Restorative Dentistry. Here also the basic sciences and relevant medical subjects constituted an important supplement to the clinical training. These courses lead to a Certificate of Training. The Orthodontics course covers a period of fourteen consecutive months; Oral Surgery a calendar year; and, Periodontology and Restorative Dentistry an academic year.

A comprehensive schedule of refresher courses, varying in duration from two weeks to four months was offered. During the year, thirty-six students were admitted to the long-term courses, and 128 to refresher courses. In the former group there were twenty-seven veterans and in the latter, 111. Because of limited physical facilities and insufficient trained personnel, a large number of applicants were denied admission. Wherever possible, former servicemen were given preference.

The Board of Trustees of the University granted funds for the inauguration of fellowships for graduate dentists in six basic medical sciences, for the purpose of encouraging and developing well-qualified dental teachers and research workers. Each fellowship requires two years of study and carries an annual stipend of \$2,000. These awards should be invaluable in stimulating closer integration of dentistry and the basic sciences.

Dr. Vernon W. Lippard, Associate Dean and Associate Director of the New York Post-Graduate Medical School, has resigned effective early next fall to become Dean of the Louisiana State University School of Medicine at New Orleans. He has made an important place for himself in the University program and, especially since his return from the Pacific theater, he has done a splendid job in organizing long and short

courses of retraining for returning medical officers. He will be greatly missed but goes to his new post with the best of wishes from a host of Columbia, Presbyterian, and Post-Graduate friends.

A major change is that occasioned by the retirement as of June 30, 1946, of Professor Benjamin P. Watson, Executive Officer of the Department and Director of the Services of Obstetrics and Gynecology. Dr. Watson has done much to make the Department one of the outstanding teaching and research units anywhere. His instruction of students and residents has been an outstanding achievement. His retirement, as that of Dr. Whipple, is a matter of profound regret but the whole Center is proud of their accomplishments and grateful for their invaluable help in building the present program. Dr. Howard C. Taylor, Jr., a graduate of this School and Professor of Obstetrics and Gynecology at New York University Medical College, has been nominated to be Dr. Watson's successor. Dr. Taylor has a national reputation in his specialty and brings to his Alma Mater a rich clinical and scientific preparation which promises to carry forward the finest tradition of the Department and the Sloane Hospital for Women.

Professor Allen O. Whipple has indicated his wish to retire next September 30 from the Professorship of Surgery and Executive Officer of that Department and Director of the Surgical Service in the Presbyterian Hospital. Dr. Whipple has made many noteworthy contributions to the development of the Medical Center and to American surgery. As a teacher, leader, and personal inspiration to his associates, old, young, and students, Dr. Whipple has no superior anywhere. After a thorough canvass of available men, the Faculty has recommended Dr. George H. Humphreys II as his successor. Trained at Harvard and the Medical Center, he brings to the post the highest promise of superlative surgery, a keen interest in teaching and a broad understanding of the opportunities in his field.

Dr. William Henry Woglom, Executive Officer of the Department of Cancer Research, is also retiring at the end of the year. Professor Woglom has carried on many researches in the cancer field and has taken a prominent part in the editorial supervision of publications on the subject. Few men are as well informed in this baffling area of science as he.



The retirement of Professor Charles F. Bodecker of the Department of Dental and Oral Surgery after nearly a quarter of a century of active research in dentistry is reported. He has made many important discoveries which have brought out clearly the close interdependence of the medical, dental, and the health services.

Professor Phillips Thygeson, Executive Officer of the Department of Ophthalmology, on leave in the military service, has resigned to enter private practice. Professor John H. Dunnington has been made Executive Officer and Director of the Ophthalmology Service of the Presbyterian Hospital.

#### CURRENT TRENDS IN MEDICAL CARE

Medicine today is in a stage of rapid evolution, accelerated by the phenomenal growth of medical knowledge during recent years and by growing public concern over the health of the population as a whole. In the long-term, over-all appraisal of the resources of our nation, there is general agreement that the health and vigor of the individual and of the entire population are vital assets of the entire country, as well as the concern of every citizen and family. The contributions of medical knowledge to the maintenance, protection and improvement of health are widely recognized. Additions to that knowledge have been greater in the last fifty years than in the previous four thousand. At the risk of oversimplification in such a brief presentation as this, attention should be called particularly to several important current trends in medical care.

Medical knowledge is now so complex and requires so many different skills that no single individual can possibly master the entire field. The development of specialization has been inevitable and, within limits, desirable. Complete medical service can no longer be rendered by an individual physician alone. The necessity of coöperation between specialists in the care and treatment of many illnesses and in many phases of individual preventive medicine suggests some form of group responsibility and coördination of the services and knowledge required for the care of a given patient. In keeping with this principle one of the first improvements in the teaching program of the School has been the inauguration of group practice instruction in the Vanderbilt Clinic for

all fourth year students, as urged in previous reports of the Dean. The plan is working admirably and adds materially also to the services rendered by the staff and clinic to patients coming to Vanderbilt Clinic.

Associated with the necessity of some form of coördinated or group practice is the increasing emphasis upon comprehensive rather than limited medical care, restricted usually to surgical conditions and obstetrics which represent only a small fraction of the medical needs of individuals or families. The coverage should be not only comprehensive for the individual but should include the entire family of dependents. Included in such comprehensive services should be preventive medical services, as well as curative and restorative procedures.

It is widely agreed that the general community hospital of the future will be the base of modern medical service. It must include not only laboratories equipped and manned to provide diagnostic services but increasingly must provide determinations to guide the doctor in the control of therapeutic procedures. It must include an out-patient service for follow-up, rehabilitation, ambulatory and home treatment, much of which if well utilized can relieve the demands for expensive in-patient hospital care. It should gradually provide office facilities for more practitioners who on the basis of "geographic full-time" can greatly increase their effectiveness and service to the community at lowered cost and with greater satisfaction to themselves.

The hospital is the natural center for all forms of professional education of nurses, doctors, dentists, technical aids of every kind, attendants, administrators, and the local general public. In such an environment research into new methods of diagnosis, treatment and prevention can flourish. Specialized hospitals for such conditions as tuberculosis, cancer, other chronic, incapacitating illnesses, contagious diseases, mental disorders, and the crippled and handicapped, maintained from tax sources will be needed and should have the facilities and trained personnel to render the highest type of medical services. General hospitals for the indigent are recognized almost universally as the responsibility of the government.

The establishment of sound hospital group practice units where actually needed throughout the country will have a particular bearing on the

all important question of the distribution of physicians. At present in this country there is one doctor to about 750 persons, an over-all ratio generally regarded as fully adequate if the services of such trained personnel are available when needed. The ratio is two to five times that found in any country in the world previous to the war. The output of the existing medical schools of the country will maintain and even increase that favorable ratio. The problem of providing proper medical services for the population is not that of producing more physicians but of obtaining a better distribution and utilization of existing doctors and future graduates. The solution is in the creation and proper maintenance of hospital centers, wherever the local health needs justify such units.

Young medical graduates, nurses and other trained professional workers will not go into practice in small communities or rural districts unless modern facilities for practice are available. Until such opportunities exist or are created, financial subsidies or other inducements alone will not suffice. It is in such institutions also that young graduates can be more effectively utilized than they are today. Perhaps the greatest waste of medical manpower in our present scheme of medical services occurs in that period of from five to ten years after completion of hospital training when younger physicians are only partly occupied in the early stages of practice.

Mention should be made of the program of the Veterans Administration which is now charged with the responsibility for certain types of medical care for over 19,000,000 ex-service men and women. Should future Congresses extend the existing provisions to non-service connected disabilities and to the dependents of present beneficiaries, there will be a potential 60,000,000 persons involved. These possibilities make most urgent the earliest possible development of sound, community-wide programs of medical care for the entire population.

In appraising the needs for medical care, it is important to keep in mind that the character of medical services in this country has changed appreciably in the past twenty-five years. A generation ago a large part of the problem was the control of contagious diseases which attacked particularly children and young adults (diphtheria, typhoid fever, tuberculosis, smallpox, and the diarrheal diseases of children, as examples).

Many of these causes of death and illness have now been brought under control or practically eliminated. Thousands of individuals now live to middle or old age as a result of the control and prevention of these crippling and killing diseases of early life, which explains in large part the sharp alteration in the age distribution of the population. Today the major problems of medicine are those of middle and later life, of chronic diseases, early diagnosis and preventive therapy, the correction of disabilities, often chronic, and the rehabilitation of handicapped individuals through vocational, psychological, educational, and medical treatment.

Illness is unpredictable for the individual and is highly uneven in its distribution in the population. In rough figures, fifty per cent of the total cost of medical care is at present carried by about ten per cent of the population. Perhaps four per cent of the families of the country bear more than one-half of the total cost of hospitalization and surgical treatment. On the other hand, the total cost of adequate medical services is not high in comparison with other expenditures in the national economy. The problem involved is that of spreading the total cost of medical care over a large fraction of the total population and over a long period of time. This involves the principle of insurance, so widely recognized in this country in other than health fields and first enunciated in the area of social security in the French Convention of 1794.

The program of insurance against sickness and the results of incapacitating illness for self-supporting persons is recognized everywhere as only a part of the larger social concept. It represents a part of the effort of employed persons for security, particularly for the wage earner, which also includes protection against such risks as old age, provisions for widows, orphans, or other survivors, temporary or permanent disability, unemployment, maternity benefits, and, more recently, hospitalization to which the employed person is liable. Originally, the object was to distribute the purely economic burden of illness over a large segment of the population. This consisted of payment for time lost and led to the development in the health field of "cash benefits" for illness, disability, and unemployment because of illness. This was shortly supplemented by "benefits in kind," comprising largely provisions for restoration, treatment, and the cure of sickness and injury and not just compensation

alone. More recently the emphasis has been increasingly placed upon prevention.

It is interesting to note that many of the present recommendations and efforts of the medical profession and other groups in this country in dealing with prepayment medical care programs have ignored the actual experiences abroad. As an example, the proposals by the medical profession are on a "cash benefit" basis for partial medical services on a fee-for-service remuneration rather than on the provision of comprehensive "benefits in kind." These methods are quite contrary to the best experiences and evidence here and elsewhere that would indicate that the proposals are already known to be impractical and unworkable.

Many of the policies being written by medical society programs are almost identical with the policies written by the commercial casualty indemnity companies. It is difficult to see why the medical profession is entering into a field of indemnity insurance already covered expertly by some of the leading insurance companies in this country. The only justification for the medical profession entering into the insurance business is to provide "benefits in kind" in the nature of comprehensive, adequate medical services, leaving the cash indemnity business to the commercial companies.

Another consideration of importance is that of the administrative responsibility in the conduct of prepayment medical services. The medical profession insists upon the control of any medical service program. It is obvious, however, that the responsibility for providing adequate medical care for the country is not merely a professional responsibility. Any adequate plan must embrace the interests of labor, business, and the public as well as the professional groups. Industry, banking, labor, the medical and other professions, the hospitals, public administration, and other interests should be represented. The purely professional matters must, of course, be left in the hands and to the judgement of the doctors and other professional workers who by training, skill, and experience are qualified to make the best decisions regarding professional services.

The country needs wise, courageous leaders in medicine, coöperating with industry, labor, and the public to meet the health needs of the country and avoid the errors and mistakes of other health service pro-

grams such as have been developed in the last sixty years in Europe. We must develop plans which will be suitable to the needs of American society under the guidance and direction by professional personnel on professional matters. There is every reason to believe that with patience and consideration of the complex adjustments that have to be made in the development of a medical service program adapted to the needs of present day society, the medical profession will be able to make a contribution of the greatest importance to the welfare of the country. If the profession is prepared to provide the necessary leadership and guidance, there is every reason to suppose that in substantial measure it will be able to remain in the position of determining the broad, over-all professional policies.

#### THE OBJECTIVES OF MEDICAL EDUCATION AT COLUMBIA UNIVERSITY

Since the creation of the Faculty of Medicine of King's College which after the American Revolution was incorporated into what is now Columbia University, the policy in regard to medical instruction has been the production of the highest possible quality of doctors for the practice of medicine and public health for the country. Graduates of the Medical School have played their part in medical affairs in national, state, and local health services for generations.

It has always been the policy of the Faculty of Medicine to select for admission those applicants who show the highest promise of becoming sound, ethical, well-trained, and competent practitioners of medicine and leaders in the medical profession, with constant emphasis on their responsibility to the medical needs of the country. Since the development of the outstanding facilities, resources, and teaching-research staff of the Medical Center, the Medical School has been recognized more widely as a national institution serving national needs in the training of doctors for practice, research, and public services.

In view of this broad policy, the selection of students, as stated in the Announcement of the College of Physicians and Surgeons for years, has placed emphasis upon those "who are most likely to succeed in medicine rather than to those who present the highest number of course credits or who have limited their preparation to the premedical sciences." Every

effort is made in the selection of students to admit those individuals who, in addition to evidence of intellectual capacity and achievement in the premedical courses of recognized colleges, have the character, personality traits, industry, resourcefulness, intellectual self-reliance, and maturity to assume responsibility in matters of life and death.

For a period of years the number of applicants for admission has been in the neighborhood of 1,500 every year. The capacity of the Medical School for adequate instruction is limited to accepting each year approximately 100 students. From the large list of applications every effort is made to select those, who, regardless of race, color, creed, or domicile, most nearly meet the qualifications mentioned above.

If this Institution and the medical profession in general is to render the highest measure of public service to the country in times of war and in times of peace, it is imperative that only the most highly qualified individuals be selected for medical training. This policy is traditional with the Faculty of Medicine of Columbia University and must be continued if the School is to justify in adequate measure its responsibility to produce an annual supply of highly qualified physicians. Any other policy would be against the public interest.

## DEPARTMENT OF ANATOMY

PROFESSOR SAMUEL R. DETWILER, Executive Officer

Dr. Raymond L. Zwemer, who has been on leave of absence for two years, has resigned as Assistant Professor of Anatomy to continue his duties as Executive Director of the Interdepartmental Committee on Scientific and Cultural Cooperation. Department of State, Washington, D.C.

Dr. George Smelser has been promoted from Assistant Professor to Associate Professor. Dr. Louis Levin, formerly Research Associate in the Department, is returning after a year at the Michael Reese Hospital in Chicago to the post of Assistant Professor. He will work on the chemistry of the steroid hormones in connection with collaborative studies involving the Departments of Anatomy, Obstetrics and Gynecology and Urology. Dr. Moses Diamond, formerly Associate Professor of Dentistry, has been transferred to the Department as Associate Professor of Dental Anatomy and Dr. Edmund Applebaum, formerly Assistant Professor of Dentistry, has been transferred as Assistant Professor of Dental Anatomy. These changes are in keeping with the plan of integrating medical and dental research and teaching announced last year.

Dr. José M. Ferrer, Jr. has been appointed Instructor of Anatomy and will assume responsibilities for Anatomy instruction to residents under the program of Graduate Medical Education and Mrs. Dorothy Z. Kraemer also has been appointed Instructor of Anatomy.

Dr. Bruno Lobo, Professor of Histology and Embryology on the Faculty of Medicine at the University of Brazil, was a guest investigator in the Department for six months. He was sponsored by the Commonwealth Fund. Dr. Cortland O. Robinson, Medical Officer for the Atlantic Division of the Pan American Airways, Inc., has been a guest investigator in the Department and has collaborated in research in experimental embryology with Professor Detwiler.

The Department has carried a heavy load of teaching. The student registration in the various courses for undergraduate medical and dental students, nurses, physiotherapists, dental hygienists, and hospital residents (190) totalled no fewer than 1,070 during the year.

In addition to the full-time staff, the course in Gross Anatomy during the year has had the continuous and capable laboratory assistance of the following clinically trained men who have added materially to the strength of the course: Doctors Emanuel B. Kaplan, John V. Gazzola, J. Ray Bryant, Milton L. Cullen, Richard O. Diefendorf, Charles Herndon, Walter Wesley Miner and Elmer Key Sanders. The instruction given by Professor Robert P. Ball and his associates in the Department of Radiology has proven most valuable to the students.

Dr. Emanuel Kaplan, in addition to his valuable aid in the teaching of Gross Anatomy, has also carried on important researches on the mechanics of the skeleto-muscular system.

Under the auspices of the Division of Cultural Relations of the Department of State, Professor Dan H. Moore was sent to Chile, Peru, Equador, and Mexico where he established biophysical laboratories and gave lectures on the applications of electrophoresis and the ultracentrifuge to the medical sciences.

Professor Herbert Elftman has continued his investigations of biomechanics and has served as consultant for the Committee on Prosthetic Devices of the National Research Council. He and Dr. William B. Atkinson have jointly contributed two chapters to the Raven Memorial Volume on the Anatomy of the Gorilla. Dr. Atkinson has continued his fundamental research on the reproductive endocrinology of the mouse. Professor Elftman and Dr. Atkinson have initiated a program of histochemical investigations on the influence of the steroid sex hormones on the distribution of alkaline phosphatase in the uterus.



Professor Sherwood L. Washburn is continuing his experimental studies upon the cranial form aided by a grant from the Viking Fund. He has also organized a conference under the same Fund of physical anthropologists from various institutions which will convene in the summer.

Professor Harry H. Shapiro has completed a second revision of his textbook on "Applied Anatomy of the Head and Neck." He has continued his researches on Experimental Amelectomy and the Transplantation of Developing Teeth.

Professor William M. Rogers is continuing his researches on degenerating motor nerves in mammals. He has been correlating structural and functional changes occurring at the neuro-muscular junction following motor nerve damage.

Professor Rogers and Dr. Henry Aranow, Jr. of the Department of Medicine have been collaborating on objective methods for studying motor responses and for evaluating the effects of various substances on the neuro-muscular mechanism—clinical and experimentally—on patients suffering from myasthenia gravis.

Professor Raymond C. Truex and Mr. Carl E. Kellner, departmental artist, have been jointly engaged for the past three years in the preparation of an atlas of the human head and neck. The atlas, consisting of approximately 150 half-tone illustrations made from original specimens and dissections, is approaching completion.

Professor Wilfred M. Copenhaver is investigating the factors affecting embryonic blood formation in Amphibians. In collaboration with Professor Detwiler it has been shown that early embryos, subjected to high concentrations of sulfa drugs, exhibit developmental anomalies similar to those reported previously following treatment with  $O_2$  and high  $CO_2$ . In collaboration with Professor Truex, a study of the Purkinje fiber conduction system of the moderator band of the heart, has been completed.

Professor Adolph Elwyn has carried his usual heavy load of teaching. In addition to his undergraduate courses, he has given ten lectures to an Army Psychiatric Unit and a series of eighty neuroanatomical lectures to a group of forty-five Residents from various State Psychiatric Hospitals. He has begun work on the second edition of his textbook on Neuroanatomy.

Professors Diamond and Applebaum have been carrying on grenz-ray studies of dental caries in human teeth. Their results support the claims of a proteolytic agent as against the generally accepted acid mechanism of this disease. They have made embryological studies concerned with the directions and interrelationship of the growth of the bones in the skull.

Professor Earl T. Engle has continued his studies on hypothyroidism in monkeys. Work on the endometrial cycle, which was largely neglected during

the war, has been reactivated. He and Dr. Charles L. Buxton of the Department of Obstetrics and Gynecology are accumulating significant data on the problem of sterility in women.

Professor Philip E. Smith has carried on his important research on the role the anterior hypophysis in pregnancy.

Professor Detwiler has been engaged with studies in experimental neuroembryology. A device has been developed for quantitating the locomotor ability of amphibian larvae following the removal of portions of the embryonic brain. The method yields fairly precise data on the influence of the various component parts of the brain upon the spinal motor mechanism. In collaboration with Professor Copenhaver, studies are being made upon the tolerance of amphibian embryos at different stages to various sulfa drugs.

Professor Detwiler has been appointed Associate Editor of the *Journal of Experimental Zoology*.

## DEPARTMENT OF BACTERIOLOGY

Professor A. RAYMOND DOCHEZ, Executive Officer

Owing to the exigencies of the wartime teaching schedules, there was some slight diminution in the breadth of the teaching program. A number of graduate students have continued their work in pursuit of the degree of Doctor of Philosophy; seven are at various stages of the required work.

A number of graduate students have continued their work in pursuit of the degree of Doctor of Philosophy; seven are at various stages of the required work.

During the past year the Diagnostic Laboratory performed bacteriological and serological examinations on 56,774 specimens, a slight increase over last year. Acting on the request of the Medical Board of the Presbyterian Hospital, a laboratory was established to provide diagnostic services in connection with the use of penicillin throughout the Hospital. The new penicillin laboratory has also undertaken the performance of anti-streptolysin determinations and diagnostic tests in connection with the use of streptomycin.

Some mention should be made regarding the increasing complexity of both bacteriological and serological procedures in the Diagnostic Service. The titration of Wassermann reactions, the introduction of additional new media for the isolation and identification of bacteria, the wider use of serological tests, and the frequent special examinations done in connection with diseases of suspected viral diseases all add to the responsibilities of the laboratory, but are not reflected in the tabulation of specimens handled.

Professor Rhoda Benham's course in Medical Mycology was given as usual

during the Spring. Out of a total registration of fifteen students, twelve were doctors, and of these six were returned servicemen who were taking graduate work in Dermatology.

Professor Claus W. Jungeblut continued his studies on experimental poliomyelitis with special emphasis on the possibility of obtaining protective effects in monkeys. With Dr. Fritz Kauffmann (from the Statens Serum Institute, Copenhagen, Denmark) experiments were undertaken in guinea pigs to study the effectiveness of various peripheral routes of infections. With Professor Nicholas Kopeloff and Dr. Bernard L. Pacella of the New York State Psychiatric Institute, a study was made of the encephalogram in experimentally infected animals as well as in human cases. With Mr. Harris Karowe and Stanley Braham (third year medical students) the blood group distribution was studied in a series of 220 cases. With Mrs. Alice Knox, a graduate student in this Department, the work on studying murine poliomyelitis virus in tissue culture was continued. Experiments were also run to study the antagonistic effect in mice of two parasympathetic or sympathetic drugs, i.e., atropin and ergotamine, on the course of botulinus intoxication.

Professor Beatrice C. Seegal, together with Dr. Margaret Holden and Dr. Harold Baer has been engaged in the study of an antibiotic occurring in *Anemone pulsatilla*, a member of the *Ranunculaceae*. The active principle, protoanemonin, a gamma unsaturated lactone, may be extracted from the plant or prepared synthetically. It has a wide range of antibiotic activity in the test tube. This work is being aided by a grant from the John and Mary R. Markle Foundation. The studies with Dr. Emily Loeb of the Department of Medicine on the action of cytotoxic serums injected in the rat have continued. In collaboration with Dr. Abbie Knowlton and Dr. Herbert Stoerk studies of the effect of the injection of desoxycorticosterone acetate (Doca) and of adrenal cortical extract upon the blood pressure of rats injected simultaneously with anti-kidney serum have been under investigation.

Professor Theodor Rosebury returned to the Department November 1, 1945. He gave a series of lectures during the third trimester to second, third, and fourth year dental students covering the material of the course. Since this course had not been given during his absence and no place could be made for it in the regular schedule, it was given after hours on a voluntary basis.

During the past twelve months, Professor James T. Culbertson has been concerned chiefly with the experimental chemotherapy of three helminth infections: filariasis bancrofti, schistosomiasis mansoni, and onchocerciasis. The work on filariasis bancrofti and schistosomiasis mansoni was done in Puerto Rico under an O.S.R.D. contract in collaboration with Professors Harry M. Rose, Federico Hernandez-Morales, José Oliver-Gonzalez and Dr. Caroline K. Pratt. Approximately fifty patients (chiefly those treated with

the pentavalent antimony compound neostibosan) have apparently been entirely freed of infection with *Wuchereria bancrofti* as a result of treatment. Of the drugs tested in schistosomiasis, only one (urea stibamine) has yet been found to have a significant effect. The work on onchocerciasis was carried on under a grant from the Winthrop Chemical Company, New York, during February and March 1946 at the Onchocerciasis Hospital, Huixtla, Chiapas, Mexico, in collaboration with Professor Rose and Drs. Francisco Ruiz Reyes, Roberto Nettel, and Angel Zurón. Arrangements for the study were made through Dr. Manuel Martínez-Baez, Under-Secretary of Health of the Mexican Government and Dr. José Zozaya, Director of the Institute of Health and Tropical Diseases, Mexico City.

Professors Rose and Culbertson under an O.S.R.D. contract have continued work on the chemotherapy of filariasis. Of the several compounds tested neostibosan proved to be best tolerated and produced the highest rate of apparent cure.

The question of the possible deleterious effects of antimony on tuberculous infections were examined experimentally. In collaboration with Professor Alfred Gellhorn of the Department of Pharmacology, the plasma levels and urinary excretion of antimony were studied in a series of patients receiving both trivalent and quinquivalent antimonial drugs. In February and early March of 1946, Professors Culbertson and Rose visited southern Mexico and treated a series of patients suffering from onchocerciasis with neostibosan. Sufficient time has not yet elapsed to be able to appraise the results of this therapeutic study.

Studies have been made on the behavior of three strains of herpes virus isolated by primary egg passage and an antigen has been prepared from the allantoic fluids of chick embryos inoculated with herpes virus which has been found to be of value in performing skin tests in human subjects for the diagnosis of antecedent herpetic infections. An anti-viral substance has been found in the sputums of normal persons and of patients suffering from diseases of the respiratory tract. The nature of this substance, which may be of considerable importance in immunity to viral infections such as influenza, is still undetermined, but it does not appear to be an antibody.

The virus work has been carried on in collaboration with Miss Eleanora Molloy. Together with Dr. Richard B. Duane and Dr. Edward E. Fischel a report was made of the successful treatment of a case of Rocky Mountain Spotted Fever with para-aminobenzoic acid. A study was made, in collaboration with Miss Katherine C. Mills, on the serological response of patients with respiratory tract infections during the period December 1945–February 1946. Cases of clinical influenza which were seen during the outbreak in December were all caused by influenza B virus, with one exception, but in

January and February infections with influenza A virus made their appearance.

Professor Charles L. Fox, Jr. has obtained further information, under an O.S.R.D. contract, regarding the so-called "loss of plasma" into injured tissues and infected wounds by electrophoretic analysis, by using radioactive isotopes to trace chloride ions, which suggested that the proteins in injured regions are derived from the tissues rather than from the plasma.

With the generous assistance of the Stamford Research Laboratories of the American Cyanamid Company, a flame photometer, which they had developed for the extremely rapid analyses of sodium and potassium, was built employing lithium as the internal standard. In collaboration with Professor Donovan J. McCune of the Department of Pediatrics, the electrolyte shifts in the course of diuresis following massive sodium lactate therapy in nephrosis were measured and similar studies were carried out in collaboration with Professor Arthur H. Blakemore of the Department of Surgery and Professor George F. Cahill of the Department of Urology. The relation of p. amino-benzoic acid, or a chemically similar metabolite, production to drug fastness in staphylococci is under study with Dr. Harold Baer. With the aid of Dr. Marjorie R. Stetten of the Department of Biochemistry this has been found to be a new substance, 2-hydroxy-5, 6-diaminopyrazine, apparently an important component of folic acid. The possibility that sulfonamide bacteriostasis is a result of interference with folic acid metabolism is under study.

Dr. Ada R. Clark has continued the comparative study of herpetic gingivostomatitis and fuso-spirochetal infections of the mouth. Dr. Margaret Holden in collaboration with Professor Beatrice C. Seegal and Dr. Harold Baer has continued the study of the antibiotic occurring in *Anemone pulsatilla*. The viruses studied—bacteriophage and influenza virus—were not influenced by protoanemonin. This work is being aided by a grant from the John and Mary R. Markle Foundation.

During the past year Dr. M. Maxim Steinbach and Mr. Charles J. Duca have continued their studies of chemicals and antibiotics for possible activity against the tubercle bacillus. These compounds were diazone, thiouracil and N<sup>2</sup>-3, 4-dimethylbenzoyl sulfanilamide. All three showed toxic effects in guinea pigs which precluded their use in human beings. Because of his previous work with promin, Dr. Steinbach has been using this compound, in nebulized form, in the treatment of bronchial tuberculosis in patients at Montefiore Hospital. The promin treatment has so far been very successful in the treatment of this type of tuberculous lesion. Dr. Steinbach and Mr. Duca have also made studies of the activity of streptomycin against tubercle bacilli, and at present are using this antibiotic in experimental tuberculosis in guinea pigs.

Dr. Helen Purdy Beale, in coöperation with Professor Dan H. Moore of the Electrophoresis Laboratory and Dr. Mary E. Lojkin, has tested by the electrophoretic method the purity of six strains and four derivatives of tobacco-mosaic virus.

Mr. Chester Southam, a fourth year medical student, has carried out a study on an antibiotic derived from cedar heart wood. Although the active principle has not yet been identified, the crude extract is not toxic for animals. Mr. Saul Frances conducted respiration studies on bacteria under the supervision of Professor Charles L. Fox, Jr. Miss Lucille K. Georg has prepared for publication results of preliminary studies with the Flaviform group of Trichophytons, "Suppurative Ringworm Contracted from Cattle." Miss Georg, under the direction of Professor Rhoda Benham, is engaged in studies of the growth factors and variations of the Flaviform group of Trichophytons and closely related organisms.

In collaboration with Professor Claus W. Jungeblut, Mrs. Alice Knox studied certain drugs which affect the central nervous system for their power to inhibit the action of botulinus toxin in mice. Mrs. Knox has studied the SK and MM murine strains of poliomyelitis virus grown in tissue cultures of embryonic mouse brains. Mr. Abraham G. Osler is engaged in research studies being conducted in the laboratory of Professor Michael Heidelberger on the effect of various activating and inhibiting substances on the hemolytic activity of complement. Mr. Fred L. Rights has been engaged in research studies on scrub typhus at the Army Medical School under the guidance of Dr. Joseph Smadel.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

There has been no essential change in the personnel of the Department.

Professor Edgar G. Miller has acted as responsible investigator under contract with O.S.R.D. for the work on amino acid analysis of pure proteins, carried out by Professor Erwin Brand and his group. This study, which has provided information of fundamental importance to knowledge of protein structure, has now given exact and complete information as to the composition of three pure crystalline proteins. Under Professor Miller's guidance Dr. Victor Ross has continued his experiments with protamine diphtheria toxoid and protamine tetanus toxoid and on the preparation of "Shick toxin" which will not require the use of a control and should yield more certain results than that employed currently in clinical practice.

Professor Goodwin L. Foster has continued his studies of the application of the isotope dilution method for the amino acid analysis of proteins. Professor

Maxwell Karshan, who is in charge of the instruction of biochemistry to dental students, has, in collaboration with various members of the Department of Dentistry, continued his studies on the etiology of periodontoclasia. Professor David Rittenberg, with Dr. David Shemin and Dr. Konrad Block has further developed the study of intermediary metabolism of amino acids with the aid of isotopic nitrogen and of organic compounds labelled with deuterium. The study of the synthesis of cholesterol from acetic acid by tissue slices has also been continued. An interesting by-product of these investigations has been the demonstration that the porphyrin of hemoglobin is directly produced from acetic acid and glycine, and the determination of the life-span of the human red cell, which proves to be about 125 days.

During the past year three visiting scientists have been associated with Professor Rittenberg's group, Dr. Edgar Shantz of Distillation Products, Inc., Professor Fritz Schönheyder of Aarhus University, Denmark, and Dr. Helge Tyren of the University of Upsala. These visitors have been instructed in techniques which they plan to apply in their respective laboratories. At the instance of Professor Rittenberg, plans have been initiated for the application of isotope techniques to the study of clinical problems in collaboration with members of the Department of Medicine.

Professor Erwin Chargaff has continued his work on lipoproteins and on blood coagulation, with special reference to hemophilia, in which work he has been collaborating with Professor Randolph West of the Department of Medicine. He has completed studies on the nucleic acids of tubercle bacilli, on the antigens of *Proteus* OX-19 and on hydroxypyruvic acid.

Professor DeWitt Stetten, Jr. has completed a study of the effect of insulin upon the metabolism of carbohydrates and fatty acids. He also investigated the mechanism of glucogenesis by determining the deuterium content of glycogen in the liver of rats. In collaboration with Dr. Marjorie Stetten, he has prepared deuterio inositol and demonstrated its metabolic conversion into glucose. A study of the atomic distribution of deuterium in glucose from rats containing heavy water is in progress.

Dr. Robert R. Williams of the Department of Medicine has carried out in the biochemistry laboratories a study of the immunological properties of chemically modified bovine serum albumin. Dr. Zacharias Dische, with the support of the International Cancer Foundation, has continued his studies of aerobic glycolysis in erythrocytes and has developed a new and sensitive color procedure for the indication and estimation of various sugars and related products.

As in previous years, Professor Clarke has devoted a considerable portion of his time to work for the Government arising out of the war emergency. His work as Special Assistant to the Director of O.S.R.D. in connection with the chemical study of penicillin has now been superseded by the task of organ-

izing the publication of the scientific material which has accumulated under this program. He has also undertaken the duties of Chairman of the Antibiotics Study Section of the National Institute of Health.

## DEPARTMENT OF CANCER RESEARCH

Professor WILLIAM H. WOGLOM, Executive Officer

Professor Milton J. Eisen resumed his duties in the Department on January 1, 1946, after serving with the Army in the Southwest Pacific for several years. He took advantage of his stay in New Guinea to investigate the results of betel nut chewing, a habit that has been widely credited with causing carcinoma of the mouth. His observations strongly suggest, however, that the actual cause is not the betel nut itself, but rather the lime or tobacco with which it is so often mixed. Professor Eisen's study of the production of sarcoma of the liver by implantation in it of paraffin pellets containing a carcinogenic hydrocarbon was carried on during Professor Eisen's absence by Mrs. Walter Long. Professor Eisen has now in progress an investigation that it is hoped will answer the question whether impaired hepatic function and consequent faulty estrogen metabolism bear any relation to the initiation of mammary tumors, and another on the possibility of inducing immunity in an inbred strain of rats.

Professor Gray H. Twombly has completed and published in association with Miss Doris Meisel his attempt to confirm the statement from another laboratory that a filtrable virus can be recovered from mouse tumors growing in fertile hen's eggs. Professor Twombly was forced to the conclusion that any neoplasms produced with material from inoculated fertile eggs grow from intact tumor cells and are not referable to the presence of a virus. Professor Twombly is conducting experiments on the induction of tumors by a new carcinogen, acetylaminofluorene, in animals stimulated by various types of hormones. He has also under way an inquiry on the effect of x-rays and hormones on transplanted mammary cancer.

Professor Jacob Heiman is continuing his investigation on the effect of the antireticular cytotoxic serum of Bogomolets, a product that has aroused considerable interest of late, upon the growth of transplanted mouse and rat tumors, and the development of spontaneous cancer in mice. Another of his experiments is concerned with the effect of testosterone and progesterone on induced and spontaneous neoplasms.

Professor Edward L. Howes, of the Department of Surgery, has completed and published his experiments on the early stages of carcinogenesis, which show differences between the connective tissue reaction in susceptible and



insusceptible animals, and has begun an inquiry on the relation between diabetes and malignant growth, employing methods that were not available when this subject first came under experimental investigation several decades ago.

In many different laboratories, and with many different methods, the cancer cell has been shown to be deficient in calcium. Whether this is a cause or an effect of its malignant nature is not known, but the clue is well worth following up with an eye to treatment. Hence for many years Professor Woglom has been trying to introduce this element into the tumor cell, but always without success. The Department is fortunate in having enlisted the interest of Dr. Zacharias Dische of the Department of Biochemistry, who will collaborate in this study.

Dr. Louis Herly is continuing his work on the virus problem. He has extended his observations on the primary fluorescence of human tumors, at first concerned principally with mammary neoplasms, to include all available human material. Identification of the agent responsible for this fluorescence awaits chemical collaboration.

Dr. Richard Jahiel, a volunteer worker in the Department, is interested in the perennial question of tumor immunity. On the working hypothesis that the cancer cell may prove to be, after all, in a sense a foreign cell, Doctor Jahiel is employing more delicate methods than have hitherto been used in an attempt to induce an immune reaction.

Professor Woglom will retire on June 30. His uncompleted experiments include a study of regressing spontaneous mouse carcinomas and of the repeated transplantation of tissue into the animal from which it was derived. In keeping with his University retirement, Professor Woglom has resigned as a member of the Scientific Advisory Committee of the International Cancer Research Foundation, now the Donner Foundation, Incorporated, Cancer Research Division, and also as Editor of *Cancer Research*, which will move to Yale University where it will be edited by Dr. Stanhope Bayne-Jones.

The following firms have generously supplied pharmaceutical products for experimental purposes: The Squibb Institute for Medical Research, The Schering Corporation, Ciba Pharmaceutical Products, Incorporated, and Roche Organon, Incorporated.

## DEPARTMENT OF DENTAL AND ORAL SURGERY

Professor BION R. EAST, Executive Officer

During the academic year 1945-1946, there were 369 students registered in 379 classes or courses in the School of Dental and Oral Surgery. Their distribution according to class or course appears in Table I.

TABLE I

*Distribution of 379 Registrations during Academic Year  
Dentistry, Undergraduate*

Freshman . . . . .	21
Sophomore . . . . .	47
Junior . . . . .	45
Senior . . . . .	43
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TOTAL . . . . .	156

*Dentistry, Certificate in Training*

Orthodontics . . . . .	28
Oral Surgery . . . . .	4
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TOTAL . . . . .	32

*Dentistry, Special Courses*

General Dentistry . . . . .	16
Prosthetics . . . . .	11
Orthodontics . . . . .	81
Periodontology . . . . .	27
Pedodontics . . . . .	1
Oral Surgery . . . . .	6
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TOTAL . . . . .	142

*Course For Dental Hygienists*

Dental Hygiene . . . . .	49
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The total number of registrations is significantly greater than in any previous year. The increase which occurred in the postgraduate courses reflects the interest of the dental veteran better to equip himself for civilian practice and also the civilian practitioner to improve his knowledge of the newer advances in dental education. While the greatest number of students were residents of New York, it is of interest to note that the student body included individuals from thirty-four other states and foreign countries. The relatively large and varied program of postgraduate dental education has been conducted under marked handicap, largely because the physical facilities of the School are inadequate.

In order better to meet the administrative problems of the Department resulting from an increased student enrollment, a separate Admissions Office was established and has functioned smoothly under Professor Houghton Holliday, Chairman of the Committee on Admissions.

#### DIVISION OF RECORDS AND PERSONNEL

Not only is the Department responsible for giving instruction and opportunities for research in dentistry as a specialized branch of medicine, but it operates a large clinic where the student receives clinical instruction. This clinic is comparable to the out-patient department and ward services of a hospital where medical students receive a significant part of their training. The conduct of the clinic involves the registration of patients, keeping of clinical records and collection of patient fees and the procurement of thousands of various essential articles of equipment and supplies. To center responsibility for the management of the clinic, a Division of Records and Personnel was established. Professor Irvin L. Hunt was placed in charge of the new division on July 2, 1945, and made superintendent of the clinic.

An important accomplishment during the year has been the introduction of a master clinic record to replace the multiple records which were formerly maintained by the several divisions. This has been effected with all patients attending the dental clinic except those referred by Vanderbilt Clinic and Presbyterian Hospital. It is anticipated that a mutually satisfactory working arrangement regarding records between these two hospital agencies and the dental school will soon result.

A second development has been the setting up of an employment policy whereby the clerical and technical personnel will be fitted into definite ratings where a salary will be set for each rating. Advancement in salary will occur according to satisfactory service and tenure of position.

#### DIVISION OF ORAL DIAGNOSIS

The teaching program of this division was expanded during the year by the introduction of graduate studies embracing both clinical and didactic instruction. The personnel of the division was strengthened by assigning Professor Lewis R. Stowe to full-time duty in the division. In addition to a continuation of the various research projects mentioned in the 1945 report new problems were undertaken as follows: An elaboration of a study of the effects on the oral structure of the implantation of estrogen pellets in dogs—Professor Daniel E. Ziskin in collaboration with Professor Edward V. Zegarelli; A study of the results of penicillin tablets taken by mouth in the treatment of acute Vincent's infection and other infections of the jaws—Professor Ziskin in

collaboration with Professor Stowe and Dr. Ada R. Clark of the Department of Bacteriology.

#### DIVISION OF OPERATIVE DENTISTRY

The vacancy which existed as head of this division at the beginning of the year was filled by the promotion of Dr. Carl R. Oman to full Professor and Head of the Division. Although the division has been handicapped because a number of its staff were still on military leave of absence, Professor Oman successfully reorganized the staff and its teaching methods.

Indicative of the esprit de corps of this division was the formation of a study club at the request of the staff members. At these sessions, all material pertaining to the teaching of operative dentistry is considered and discussed. Each demonstration is followed by various members of the teaching staff going into the clinic and performing the respective operations on clinic patients. This has tended to introduce uniformity in teaching methods which eliminates confusion in student teaching and should be of assistance in developing young teachers.

In September, 1945, Dr. Milton R. Miller, Assistant Professor, resigned. Dr. Daniel M. Kollen was appointed Assistant Professor and placed in charge of the teaching of root canal therapy. Dr. Bernard O. A. Thomas, Instructor in Dentistry, resigned to become Assistant Professor and Head of the Department of Oral Pathology in the new dental school of the University of Washington.

Dr. Kollen gave a postgraduate course in root canal therapy for the First District Dental Society. Drs. William J. Miller and Edward Cain are working together with the division head on a Syllabus to be distinctive of Columbia University operative technique. This will probably be ready for use in September, 1946.

#### PROSTHETICS DIVISION

Dr. Gilbert P. Smith was appointed a full Professor and Head of the Division on October 1, 1945, and continued the program as previously set up. The reduction in the staff and the accelerated program have taxed the time of the division and have precluded much activity other than that pertaining to lecture, laboratory and clinical routine. The resignation of Professor Earle B. Hoyt as Head of the Division and the decisions of Associate Professors Harry A. Young and Donald J. McLaughlin to reduce their schedule from full- to half-time necessitated the complete reassignment of lectures and technique courses. Under the leadership of Professor Smith, changes in pro-

cedure in prosthetic teaching, administration, and a new system of clinic records have been developed.

It is a satisfaction to report that Dr. Max A. Pleasure and Dr. Saul Misheloff were added to the prosthetics staff during the year. Dr. Pleasure is a well-known prosthodontist and Dr. Misheloff is a graduate of Columbia who is recognized by the profession for his excellence in the field of restorative dentistry. At the request of the New York State Health Department, a post-graduate course was arranged in surgical prosthesis for dentists practicing in upstate New York. The Health Department paid the tuition fee and a stipend to the student for subsistence while taking the course. Professor Smith was assisted in this particular postgraduate course by Dr. Oscar Beder and Dr. Louis A. Saporito. Dr. Saporito is a member of the Executive Council, County Prosecutor and Chairman of the Board of Censors of the Essex County Dental Society and a Trustee of the New Jersey State Dental Society.

#### ORAL SURGERY

Dr. Henry S. Dunning, who was one of the founders of the School of Dental and Oral Surgery, Professor of Dentistry and Head of the Division of Oral Surgery for many years, retired on June 30, 1946. Dr. Dunning retains his interest in the School and has been appointed Professor Emeritus of Dentistry.

During the first few months of the present academic year, Dr. Douglas B. Parker directed the division. In October, Dr. Maurice J. Hickey was appointed Professor of Oral Surgery and Head of the Division. Professor Hickey brings to the division outstanding preparation, both professional and administrative.

Under the present system of clinics, the students devote the morning session to exodontia without the distraction of oral surgery. The afternoon is devoted to lectures and demonstrations of the diagnosis and treatment of oral surgery cases. Senior students are being used as assistants at all maxillo-facial operations performed in Presbyterian and Babies Hospital operating rooms. The purpose behind this innovation is to acquaint students with the technique and conduct required in an operating room. Arrangements have been made with the Neoplasm Clinic of Presbyterian Hospital to have all new oral neoplasms sent to oral surgery for examinations and biopsy. This has provided a larger volume of oral carcinomas for presentation to the students. If the integration of the faculties of medicine and dentistry resulted in no further benefits than have been outlined in the activities of the division of oral surgery, it was truly worthwhile. The training of postgraduate student candidates for the certificate of training in oral surgery has been expanded by affiliation

with the dental surgery departments on Mount Sinai and Montefiore Hospitals.

#### PERIODONTIA

The Periodontia Division, under the direction of Professor Harold J. Leonard, has carried the usual program of undergraduate training and has expanded its teaching program of postgraduate students. This has included special courses for dentists who wish to specialize in periodontia as well as giving instruction to postgraduate students who are registered for courses in oral surgery, orthodontics, and restorative dentistry.

Professor Leonard served as Secretary-Treasurer for the American Board of Periodontology and Advisory Board for Dental Specialties, Advisor to the Committee on Specialties of the Council on Dental Education of the American Dental Association, Chairman of the Periodontia Section of the American Association of Dental Schools, Vice-Chairman of Periodontia Section of the American Dental Association.

A two weeks full-time course was given to sixteen dentists in June. Several well-established periodontists were included in this group, members of which came from eleven states and Cuba.

A full-time academic year course leading to a Certificate of Training has been organized and will be ready to start in September, 1946. The School is believed to be the first to organize and offer such a course which may serve as preparation for dentists who wish to specialize in Periodontology and to qualify for certification by the American Board of Periodontology.

Research is going forward in continuation of the animal and human experimentation of Professor Frank E. Beube to form alveolar bone by the use of boiled animal bone powder. Dr. Herbert Bartelstone is assisting in this research.

The research of Professor Maxwell Karshan of the Department of Biochemistry and Dr. Benjamin Tenenbaum relates to systemic chemical conditions found in marked periodontoclasia cases. An outstanding finding is the evidence that a severe periodontoclasia of children and young adults is confined almost exclusively to females and has no discoverable local etiology adequate to account for the condition. There is something here of importance to the whole field of physiology relating to tissue resistance to infection which might well be discovered through this investigation.

The Columbia Periodontia Group, a society made up of postgraduates and others interested in periodontology in the Metropolitan Area, has held monthly meetings at the School during the year. Under the able leadership of Dr. Jacob S. Friedlander, the programs have been excellent and the meetings well attended.

## PEDODONTICS

Under the direction of Professor Ewing C. McBeath, the division has continued its unique place in dental education. When a child is accepted as a patient it is treated as a comprehensive case and its entire dental needs are supplied by the student under the direct supervision of a member of the staff. The New York State Health Department recognized the program's worth when it requested that a special course be arranged for upstate dentists, financed by the State Health Department.

During the year, Dr. William A. Verlin, who has been on military leave, returned to active duty in the division. Dr. Stanley W. Vogel was also added to the staff.

In addition to his services in the division of Pedodontics, Professor McBeath again gave the course in medicine for dental students. It is gratifying to note that returning veterans, graduates of this school, express their appreciation of the usefulness and the practicability of the knowledge acquired in this course. They report that this preparation made it possible for them to be accepted by their medical colleagues in the Army and Navy on a different plane from that of the graduates of most dental schools.

## RADIOLOGY

Professor Houghton Holliday, in addition to acting as Chairman of the Admissions Committee, continued as head of the Radiology Division. Professor Holliday resigned as Executive Officer of the Department of Dental and Oral Surgery and Associate Dean of the Dental Faculty on June 30, 1945. He has contributed significantly to building the dental faculty and the School's scholastic standing whereby it was rated 99.4% out of a possible 100% by the Council on Dental Education of the American Dental Association. Fortunately for the School, Professor Holliday consented to remain as Professor of Dentistry and head of the Division of Radiology.

## ORTHODONTICS

Dr. Arthur C. Totten was promoted to Professor of Dentistry and appointed head of the division on July 1, 1945. The Orthodontic Division can well serve as an example of the benefits of "integration." Since July 1, the course has been materially strengthened by the addition of instruction in pediatrics, physical diagnosis, some aspects of internal medicine related to dentistry, comparative dental development, and related clinical practice and biostatistics. This is to enable the postgraduate student better to evaluate the patient as a whole which should be the basis of orthodontics.

Previously, the division accepted postgraduate students on a full-time basis but had a staff in attendance only during the mornings. This has been corrected also, the acceptance of part-time students has been discontinued. The demand for orthodontic treatment in the clinic has been so great that it has been impossible to accommodate more than 8% of those applying for admission. In spite of the increase of the number of students and staff available for caring for clinic patients, an individual must, at the present time, wait for three years before treatment can be started.

The State of New York has recently recognized the importance and need of orthodontic treatment by establishing a program for the underprivileged, the cost of which is paid by the State.

Besides the clinic undergraduate and postgraduate training, the division, through the coöperation of guest clinicians and lecturers, has offered three postgraduate courses for practicing orthodontists. During the year, 190 students attended the various orthodontic courses.

During the year, Dr. Lewis E. Jackson resigned and his work was taken over by Dr. James Jay who was promoted to Instructor. Dr. Harry Galton was promoted to Assistant Professor.

Certificates of Training were awarded to sixteen students. Dr. Jay and Dr. William Lefkowitz of the Histology Division collaborated in an investigation of changes produced by orthodontic appliances on the teeth, alveolar process, and mandible and maxilla of Macaus Rhesus monkeys.

Dr. George Callaway, Associate Professor of Dentistry, is President of the New York Academy of Dentistry and a member of the executive committee of the New York Society of Orthodontists. Dr. Harry Galton is a member of the Interprofessional Relation Committee of the New York Academy of Dentistry. Dr. Henry U. Barber, Jr. is a member of the Public Relations Committee of the American Association of Orthodontists, Member of the Credential Committee for the Greater New York Dental Meeting and New York State Dental Society, Member of the Orthodontic Committee Relative to State Aid. Dr. William C. Keller is a member of the Board of Censors, New York Society of Orthodontists.

#### ORAL HISTOLOGY

Under the direction of Professor Charles F. Bodecker the program of teaching and research in this field was continued. Members of the staff presented papers before a number of dental societies. On June 30, 1946, Professor Bodecker retired after twenty-three years of most valuable and faithful service to the School. As Professor Emeritus of Dentistry, Dr. Bodecker will continue his research and his active interest in the School.



In keeping with the purposes of integrating the faculties of the Medical and Dental Schools, the teaching and research activities of dental anatomy and embryology were transferred to the Department of Anatomy. The oral pathology teaching and research was transferred to the Department of Pathology. Professors Moses Diamond and Edmund Applebaum were transferred to the Department of Anatomy and Professor Lester Cahn to the Department of Pathology. The wisdom of this change is already apparent. Each of these teachers and investigators has improved physical facilities at their disposal and the resources of their respective basic science departments.

#### DENTAL HYGIENE

Under the direction of Mrs. Frances A. Stoll, the courses for Dental Hygienists enjoyed its prewar student enrollment. Eleven states were represented among the students. Miss Katherine Hollis, Instructor in Dental Hygiene, retired on June 30, 1946, after twenty-four years of service. Miss Hollis contributed significantly to the building of the courses for Dental Hygienists.

#### DEPARTMENT OF DERMATOLOGY

Professor J. GARDNER HOPKINS, Executive Officer

Dr. Robert R. M. McLaughlin has returned from five years leave of absence with the Navy. Dr. Elizabeth A. Laszlo has been granted a year's leave of absence for duty with the United Nations Relief and Rehabilitation Association in China.

To meet the demands of the accelerated program Professor Leslie P. Barker was placed in charge of teaching for the third year and Professor James L. Miller for the fourth year class. This arrangement has promoted efficiency and will be continued. The Syphilis Symposium for the fourth year class was held on January 18, 19 and 25. Dr. John F. Mahoney of the United States Public Health Service, Dr. Norman R. Ingraham, Jr., of the University of Pennsylvania, Dr. Edward P. Maynard, Jr., of the Long Island Medical College and Dr. Bernhard Dattner of Bellevue Hospital were guest speakers.

Experience during the war brought home to many medical officers the importance and interest of dermatology and in consequence an unprecedented number of well qualified candidates are seeking opportunities for graduate training in this speciality. To meet the needs of these veterans, the Department has expanded its program of graduate instruction, an undertaking made possible by the grant to the University from the W. K. Kellogg Foundation and by anonymous gifts to the Department. Ten physicians are now engaged in

a three year period of training, some as residents and others as assistants in the Vanderbilt Clinic. Still others have been admitted for courses in Mycology and in Histopathology of the Skin. Even so, it has been impossible to accommodate more than a small fraction of those applying for full-time training or for special courses. The presence of the enthusiastic graduate students is stimulating to our teaching staff. Arrangements for affiliated residencies have been completed at St. Luke's Hospital, Roosevelt Hospital, and the Hospital for Joint Diseases where the chiefs of the dermatological services are members of our teaching staff.

In spite of the abnormal burden of teaching and clinical work imposed by the accelerated educational program and absences of staff members, clinical investigation has been energetically pursued. Professor George C. Andrews has completed the third edition of his textbook on diseases of the skin which was published in May. Professor A. Benson Cannon is engaged in a study of penicillin therapy in syphilis aimed especially at development of a menstrum which will furnish gradual absorption for a twelve to twenty-four hour period. Encouraging results have already been obtained with hydrogenated cottonseed oil. Professor Andrews, Dr. Jerome K. Fisher and Mr. Carl B. Braestrup are studying dosages for "contact" x-ray therapy with recently installed apparatus. The method combines speed and convenience of application with greater safety for underlying structures. Professor Paul Gross and Beatrice Kesten have continued their special clinic for study of metabolic changes in psoriasis. Professor Miller conducted studies on local penicillin therapy, and with Professor Rhoda W. Benham, on treatment of the *Microsporum Audouini* infections which have assumed epidemic proportion in our public schools. Doctors William and Helene O. Curth are studying local therapy with tyrothricin.

Professor Benham, Dr. Elizabeth Hazen of the New York State Department of Health, and Miss Lucille Georg have continued studies on the nutritional requirements of pathogenic fungi with special reference to the effect of various nutrients on morphology.

## DEPARTMENT OF MEDICINE

Professor WALTER W. PALMER, Executive Officer

An important change in the dispensary teaching of the fourth year clinical clerks has occurred in the establishment of a group practice clinic in Vanderbilt Clinic. The surgical and medical dispensary clerkships are now combined. So long as the student is on service as clerk he follows his patients with the Attending and is present at the consultations which take place. The Departments of Surgery and Medicine are combining to rearrange the lectures as-

signed to both departments. These lectures will be conducted by medical and surgical staff members engaged in the presentation of all aspects of the subjects.

At Bellevue Hospital, under the direction of Professor Dickinson W. Richards, Jr., the fourth year students have the advantage of seeing a large variety of clinical material at the bedside where an instructor is provided for every four students. On the Chest Service, under Professor J. Burns Amberson's direction, the students have the opportunity to become familiar with the mechanism involved in the pathogenesis of disease. Social and public relationships, particularly as these concern tuberculosis, are discussed.

At Goldwater Memorial Hospital the Department has found it expedient to contract its program to the Research Division. From now on there will be only a few undergraduates working there on the tutorial basis. A limited number of our fourth year men have continued with ward and emergency work at Roosevelt Hospital.

As the young men in service return the assistant resident staff has been increased to give them additional training both at the Presbyterian Hospital and at Bellevue Hospital. Bellevue has increased the number of assistant residents by four, Presbyterian by twelve. From April 1 to July 1 Professor Richards gave an intensive course for eight returning veterans. On the Chest Service twenty-two physicians received training as assistant residents and residents during the year, seven of these remaining for more than one year. Thirty-seven interns assigned from the various medical divisions of the Hospital have received formal training for an average of three months each. In addition, twelve men have had fellowship appointments enabling them to carry on clinical work or special investigative work. These numbers are greater than in any previous year. The program of resident training, in addition to instruction by the Visiting Staff, includes a number of regularly scheduled conferences designed for specific purposes. The quality of the resident staff has been excellent and a great deal of educational value has been accomplished with them.

Twenty physicians attended a formal course in October for intensive instruction in diseases of the chest. This course is a continuation of that offered by the Trudeau School of Tuberculosis. Hereafter there will be no formal connection between the two courses but, by mutual agreement, the Bellevue course will follow immediately that given at Saranac for the convenience of interested physicians. A good deal of instruction has been given by the staff to veterans who are studying in the First, Second, and Third Medical Services of the Hospital. By mutual agreement these men are taken for scheduled instruction and it is arranged for them to attend the clinical conferences. At the request of Professor Mustard, Director of the School of Public Health, physicians enrolled in the public health courses and who are studying the

problems of tuberculosis are given instruction in clinical and pathological problems.

Numerous research projects are underway in the Department. Professor Franklin M. Hanger, Jr. in the biological field, has demonstrated that there is often a correlation between certain functional derangements of the liver and the anatomical lesions found on biopsy. A method has been devised by which the protein abnormalities can be evaluated. Professor A. Raymond Dochez and Miss Katherine C. Mills report the production of a specific anti-serum effective in preventing experimental infections with a virus isolated from a fatal case of primary atypical pneumonia in man. Professor Yale Kneeland, Jr. in his studies of di-bromo-salicyl finds this drug is a powerful bactericidal substance against staphylococcus and, also, against certain strains of hemophilus influenzae. This substance may have a virucidal action as well.

Professor Ralph H. Boots, Dr. Charles A. Ragan, Jr., Dr. James A. Coss, Jr., and Dr. Eli Bauman working in the Edward Daniels Faulkner Arthritis Clinic report that continuous use of gold salts may cause remission in chronic rheumatoid arthritis if administration is continued over long periods of time; that British anti-Lewisite seems to ameliorate the toxic reactions due to gold, and cold agglutinins may develop following treatment with BAL; that penicillin administered by mouth to patients suffering from Marie Strumpell arthritis causes little improvement but the bacterial flora of the throat loses the Gram positive organisms and coliform organisms appear.

Dr. Emily N. Loeb, with Professor Beatrice C. Seegal of the Department of Bacteriology, is continuing her observations on the renal effect of certain antisera. A study of the possible modification of these effects through certain steroids of the adrenal gland is under way in collaboration with Professor Seegal, Dr. Abbie Knowlton, Professor Robert F. Loeb, and Dr. Herbert C. Stoerk of the Department of Pathology.

Professor Harry M. Rose, working with Professor James T. Culbertson of the Department of Bacteriology under an O.S.R.D. contract on the chemotherapy of filariasis, has observed that at the present time antimonial compounds are the drugs of choice in the treatment of Bancroftian filariasis; of the several compounds tested neostibosan proved to be best tolerated and produced the highest rate of apparent cure. No evidence could be found for the deleterious effects of antimony on tuberculous infections. In collaboration with Professor Alfred Gellhorn of the Department of Pharmacology, the plasma levels and urinary excretion of antimony were studied in a series of patients receiving both trivalent and quinquevalent antimonial drugs. Studies have been made on the behavior of three strains of herpes virus isolated by primary egg passage, and an antigen has been prepared from the allantoic fluids of chick embryos inoculated with herpes virus which has been found in the sputums

of normal persons and of patients suffering from diseases of the respiratory tract. Professor Rose with Drs. Richard B. Duane, Jr. and Edward E. Fischel reported the successful treatment of a case of Rocky Mountain Spotted Fever with paraaminobenzoic acid. Dr. Franklin A. Stevens has demonstrated molecular degradation of proteins in ragweed extract with a consequent loss of antigenicity. Dr. Joseph C. Turner has begun research in sickle cell anemia and the influence of virus infections on the course and development of animal leukemia.

Professor Robert F. Loeb, with Drs. Emily Loeb, Abbie Knowlton, and George A. Perera, has been carrying out studies in relation to the role of desoxycorticosterone acetate in the genesis of hypertension and has embarked on studies on the effect of the sodium ion itself in this disorder. Dr. Perera has shown that the liver and portal circulation may be responsible for the increased plasma volumes observed in cardiac insufficiency and Laennec's cirrhosis. He is investigating the role of the adrenal cortex and electrolyte metabolism in the mechanism of hypertension.

The research activities of Professor Randolph West include, in coöperation with Professor Erwin Chargaff of the Department of Biochemistry, studies on pseudo-hemophilia. With the late Mrs. Ethel B. Gutman, Professor Alexander B. Gutman completed a method for determination of acid and alkaline phosphatase using a new substrate, phenolphthalein monophosphate. Professor Gutman has completed a new manometric method for the estimation of uric acid in serum and urine.

Professor Michael Heidelberger has developed a method of vaccination against pneumococci using specific polysaccharide. Its effectiveness was studied at the Air Force Training Camp at Sioux Falls with 9,000 subjects and 9,000 controls. No cases of pneumonia developed in the treated cases and twenty-three cases developed among the untreated. Professor Heidelberger has directed further studies toward possible immunization against malaria.

Dr. David E. Green and his colleagues of the Enzyme Laboratory have discovered and isolated from animal tissues three enzymes involved in the oxidation of ketone compounds. These three enzymes depend for their activity upon the presence of vitamin B<sub>1</sub> pyrophosphate. Dr. Green, with Captain W. E. Knox and Dr. Morris Spirtes, has undertaken at the request of the Office of the Quartermaster Corps an investigation of the fundamental biochemistry of antiseptics.

Professors Richards and Andre F. Cournand, on the Columbia Division, at Bellevue Hospital, under an O.S.R.D. contract, report a study on artificial respiration which had been specially requested by the Aero Medical Laboratory at Wright Field. The particular job in hand was the analysis of performance and of effects on both respiration and circulation of the Burns

model resuscitator as developed by the Aero Medical Laboratory. This was found to be an effective apparatus both in conscious and unconscious subjects, and a full report of the study was submitted last fall to the office of the Committee on Medical Research and to the Office of the Air Surgeon. Shortly thereafter Captain Hurley Motley, who had collaborated with Dr. Richards and Dr. Cournand, received a special commendation from the Air Surgeon's Office for this work. Professor Cournand aided the Aero Medical Laboratory at Wright Field in studies of the use of other forms of resuscitator apparatus. New apparatus developed at Wright Field, as well as certain types of commercial apparatus, are being tested. The so-called recording optical bench, on which Professor Cournand and the group from Professor Homer Smith's laboratory at New York University Medical School worked actively during the course of the Government Contract, finally resulted in an excellent apparatus built by the Cambridge Instrument Company.

Under Professor Richards' direction, work has continued actively in the general field of respiratory and cardiac physiology under the grant from the Commonwealth Fund. This has included studies of cor pulmonale; a continuation of the various studies of cardiac and pulmonary function on patients before and after chest surgery; and, more recently an investigation of various cardiac disorders, both acquired and congenital. These have been taken in part from the First Medical Division and in part from the Pediatrics Division. Professor Cournand's research team, which has been carrying out the above work in addition to those already named, has included Dr. Aaron Himmelstein of the Chest Surgical Division, Dr. David T. Dresdale now on the First Medical Division, Dr. Dorothy Leake of the Chest Medical Division, and the laboratory staff under Mrs. Marianne Lester.

Using the techniques for analyzing pulmonary function, and the catheterization procedure for the study of various functions, Dr. Eleanor deF. Baldwin, in collaboration with Professor George H. Humphreys, II, Drs. David Green, James Mathers, and Paul Wilson of Babies Hospital, has been active in the analysis of cases of congenital heart disease. Work has continued in analyzing cases of silicosis to define their relative states of disability.

Professor Edgar M. Medlar at Bellevue Hospital is continuing his research with the support of the John Hegeman Memorial Fund of the Metropolitan Life Insurance Company. He has gathered material in the autopsies of Medical Examiner's cases which provides unique information concerning the prevalence of tuberculosis and its relationship to public health activities. As an incidental study, Professor Medlar has investigated the occurrence of caseous and cavitary tuberculosis as shown by autopsies in the various hospitals of the city of patients who have died from other diseases. The figure is surpris-

ingly high and will undoubtedly stimulate further investigation and action. With the assistance of Dr. Ursula Joan Roche, Professor Amberson is completing a study of early pulmonary tuberculosis from material which we have been collecting during the past seventeen years.

In collaboration with Drs. Margaret Boyle, Rene Wegria, Richard A. Cathcart, and Professor John L. Nickerson of the Department of Physiology, Professor Robert L. Levy has made observations on the cardiovascular system, following its intravenous injection of nicotine in normal persons, cases of coronary heart disease and of peripheral vascular disease. It appears that in susceptible individuals nicotine may constrict the coronary arteries and so bring about a diminished flow of blood to the myocardium. In collaboration with Dr. Paul D. White, Lecturer on Medicine at Harvard Medical School, Dr. William D. Stroud, Associate in Medicine at the University of Pennsylvania School of Medicine, Brigadier General C. C. Hillman of the Letterman General Hospital, and Professor John W. Fertig who acted as consulting statistician, Professor Levy made statistical studies of blood pressure in army officers. Observations made on the effects of synthetic quinidine and dihydroquinidine in cases of auricular fibrillation lead to the conclusion that both of these drugs in appropriate doses, were as effective as commercial quinidine. Dr. Richard T. Cathcart, Dr. David W. Blood and Mr. Edgar Liefer, a fourth year medical student, under Professor Levy's supervision found that digitalis has no effect on the clotting time of blood. Observations made on the use of digitalis during the acute stage of cardiac infarction seem to indicate that this drug may safely be given during the period immediately following coronary occlusion and that it may be expected, at this time, to exert its usual effects in relieving cardiac insufficiency.

Professor Alvan L. Barach, assisted by Drs. Bettina B. Garthwaite and Colter Rule, is investigating the effect of inhalation of penicillin aerosol in chronic bronchitis, bronchial asthma, bronchiectasis, lung abscess and sinusitis for which new apparatus and special techniques have been developed. The use of the immobilizing pressure chamber for the treatment of pulmonary tuberculosis has continued. The follow-up results of seven out of eleven cases in which either clinical recovery or arrest of the disease took place, indicate that the principle of lung rest as achieved by residence in the equalizing pressure chamber constitutes a form of treatment that achieves results in selected cases unobtainable by any other method.

Professor George Draper and Dr. C. Wesley Dupertuis, assisted by Dr. Hugh McGill of Queens University Medical School, have made constitutional appraisals on over 500 pregnancy cases from the Sloane Hospital Ante Partum Clinic. Dr. Sidney C. Werner under an O.S.R.D. contract has studied the

pharmacologic properties of a mixture of pure amino acids in gastrectomy patients. The use of amino acids post-operatively and pre-operatively also resulted in a less complicated clinical course than in a control group of untreated patients.

Dr. Harry Aranow, Jr., in collaboration with Professor Earl T. Engle of the Department of Anatomy, finds that prolonged administration of thiouracil to monkeys produces a hitherto unreported histological change in the hyperplastic thyroid glands. With Professor William M. Rogers of the Department of Anatomy, he has collaborated on an electrical stimulating and recording apparatus with which it is hoped that the intimate phenomena of neuro-muscular transmission in the myasthenic may be studied. With Dr. C. Harrison Snyder of the Babies Hospital staff and with Dr. Marcel Goldenberg, Dr. Aranow has found that Fournau compounds number 933F and 1164F, when administered intravenously, have the power of abolishing hypertension due to excessive adrenalin secretion. Dr. Thomas H. Hunter has demonstrated that the treatment of subacute bacterial endocarditis with hydrosis of penicillin up to 20,000,000 units has resulted in the cure of some of the resistant cases.

Professor David Seegal reports for the group on Welfare Island as follows: Professor Arthur J. Patek, Jr. and his associates are continuing their studies on dietary treatment of Laennec's cirrhosis. Professor Joseph Victor has succeeded experimentally in producing a prompt and sustained hypertension by unilateral, subtotal ligation of periadrenal blood vessels and tissues. Professor Forrest E. Kendall, with the assistance of Dr. Liese Lewis, Professor Victor, Mr. Walter Meyer, and Miss Anne Shwachman, aided by a grant from the Lasker Foundation, has developed a simplified method for determination of cholesterol. Dr. Alfred Steiner has confirmed his previous observation that the feeding of soya lecithin produces a temporary fall in the serum cholesterol level of man. In the past year he has produced a sustained hypercholesterolemia in dogs by means of combined thiouracil and cholesterol feeding. Two of three dogs so treated have developed arteriosclerosis of the aorta, coronary and some other arteries which closely resemble the lesions found in human arteriosclerosis. This is the first recorded instance of the production of arteriosclerosis in the dog by induced hypercholesterolemia, as far as we know. This finding meets one of the objections of those who hold that hypercholesterolemia plays a minor or non-existent role in the development of human arteriosclerosis.

Professor Seegal has continued his interest in the factors influencing the maintenance and progression of chronic glomerulonephritis, particularly in reference to hemolytic streptococcus infection. Professor Seegal, Dr. Henry Cocher and Dr. Richard B. Duane, Jr. have recently collected informa-



tion with regard to progress in the control of chronic illness. They have concluded that some chronic illnesses can be largely controlled if adequate medical or surgical procedures are instituted before the disease process has become irreversible.

Dr. Colcher with Professors Patek and Kendall has studied the rate of disappearance of galactose from the blood stream after intravenous injection. The data accumulated permitted the construction of an equation giving the percent of galactose removed per minute. The numerical value so obtained is called the Galactose Removal Constant. This Constant has thus far proved useful in determining functional impairment of the liver and in the differential diagnosis of certain liver diseases. Dr. Colcher with the assistance of Professor Victor has embarked on a study concerned with the experimental production of ulcers in the main stomach of the rat. Dr. Alice Lowell continues her affiliation with Professor Cournand at Bellevue Hospital in the studies on shock. Dr. Harold Mankin of the resident staff at the Goldwater Memorial Hospital continued his study of the osmotic factors in the formation of ascites in patients with Laennec's cirrhosis.

Dr. Frederick R. Bailey was promoted from Assistant Clinical Professor to Associate Clinical Professor; Dr. Joseph C. Turner from Associate in Medicine to Assistant Professor of Medicine. Professors I. Ogden Woodruff and Henry James will officially retire from the active visiting staff of the First Medical Division, Bellevue Hospital, on July 1 having reached the retirement age. Both have signified, however, their willingness to continue as active consultants to the service. Dr. John L. Caughey, Jr. resigned to become Assistant Dean at Western Reserve University Medical School.

Professor Robert F. Loeb has been elected a member of the National Academy of Sciences. His additional activities this year have included serving on the Advisory Council of the Life Insurance Medical Research Fund and on the Advisory Board for the health service of the National Red Cross; he has acted also as Consultant to the Veterans Administration, Kingsbridge Installation. Professor Michael Heidelberger has been invited by the national Union of Intellectuals of France and the French Government as one of two representatives from the United States to deliver an address on Immunity at an international gathering in Paris next December to commemorate the fiftieth anniversary of the death of Pasteur. Dr. Fritz Kauffmann of the State Serum Institute, Copenhagen, Denmark, a noted bacteriologist, has worked in Professor Heidelberger's laboratory, as has also Dr. Mary Loveless, allergist of the Cornell University Medical College. Mr. A. Osler of the New York City Department of Health Laboratories, has been assigned to the laboratory for a study of complement now under way. This study is being carried on with the aid of a grant from the Rockefeller Foundation and with

the help of Dr. Otto Bier, Director of the Butantan Institute, Sao Paulo, Brazil, who has returned to complete his Guggenheim Fellowship, interrupted by the war.

Professor Heidelberger has been elected President of the American Association of Immunologists. Dr. David E. Green received the Paul Lewis Laboratories Award in Enzyme Chemistry from the American Chemical Society. Professor Robert C. Darling began in January to establish his laboratory for research in Physical Medicine which is supported by the Baruch Fund. He has been delayed by the difficulty of acquiring laboratory material and in procuring assistants but should be ready soon to proceed with his studies.

The first year of the training program for physical and occupational therapy students under the auspices of the College of Physicians and Surgeons has been satisfactorily completed under the supervision of Professor William Benham Snow. Emphasis has been placed on integration of the basic training for the physical and occupational therapists. Being at the Medical Center has added greatly to strengthening the program and has been a stimulus to both students and instructors. Curricular changes have been made, mainly in the physical therapy training, where a return to the original plan of a two-year course is to be put in operation. The establishment of the Bachelor of Science degree in Physical and Occupational Therapy adds incentive to the prospective students.

The Council on Medical Education and Hospitals of the American Medical Association again has accredited the courses as acceptable training with the statement that the program covers the standard requirements set up for such institutions.

A total of 192 students was enrolled in occupational therapy; fifty-four in the War Emergency course sponsored by the War Department and seventy-five students in the regular course of instruction. Students in the regular course of instruction had prepared in fifty-five different colleges and universities. The fifty-four students in the War Emergency course all held Baccalaureate degrees, including four with Masters degrees.

The Professional Certificate in Occupational Therapy was awarded to twenty-eight students in October, 1945, and to twenty-five students in February, 1946.

The arrangement with Teachers College has been continued because, due to the nature of the laboratories needed in the teaching of occupational therapy techniques and modalities, their facilities are most appropriate. Under this plan students have participated in five regular Teachers College courses and have formed the personnel for nine courses. Twenty-five hospitals and agencies have served in the teaching program for occupational therapy.

Through the generosity of the W. K. Kellogg Foundation, the Occupational

Therapy Division has been the recipient of grants totalling \$3000 for scholarship awards and \$3000 for student loan purposes. Twenty-one students in occupational therapy have benefited by this scholarship help and six students have derived necessary help from the loan fund.

Previous and currently enrolled students have obtained scholarships from several sources of their own contact, among them the Schepp Foundation, Hattie Strong Foundation, Jewish Educational Alliance, P.E.O. Sisterhood Educational Fund. Requests for scholarship aid are increasing. There is definite need for further assistance.

Of the twenty-seven students who registered September, 1945, for courses in physical therapy, fifteen held the B.S. degree, seven were graduate nurses, and six had two years or more of college.

It is appropriate to note in this brief report that, as far as didactic instruction is concerned, two courses in physical therapy have been instituted for the future: one, a two-year program leading to the B.S. degree for candidates who can submit sixty points of credit in the liberal arts with a strong offering in the basic sciences, also a Certificate for graduate nurses; and the other, a one-year Certificate course for college graduates and public health nurses with experience.

No scholarship aid has been provided by the University for regular students in physical therapy for which there is a real need. It happens, however, that twenty-two of the students in residence in physical therapy during 1945-1946 have received substantial scholarship aid from the National Foundation for Infantile Paralysis, and one student has had a full maintenance fellowship from the American Physiotherapy Association.

## DEPARTMENT OF NEUROLOGY

Professor TRACY J. PUTNAM, Executive Officer

The Department is happy to welcome back those of its members who have served in the Armed Forces. All have returned safely and are now again actively engaged in the teaching, research, and administrative activities of the Department.

No change in the undergraduate teaching plan was made during the past year, but with the increase in personnel available for teaching, the courses have been more thoroughly presented. Two courses in neuropsychiatry for the Army Medical Officers were given in conjunction with the Department of Psychiatry during last fall and winter. Another course is being given for veteran residents of the New York State hospitals who are receiving basic training in neurology and psychiatry at the Neurological and Psychiatric

Institutes. In addition, informal training in basic and clinical neurology is offered to small groups of veterans and foreign graduate students at the Institute, at the Medical School, and at Vanderbilt Clinic, under the direction of Dr. Hans Hoff.

The study of peripheral nerve injuries especially the results of plasma glue sutures which has been carried out in conjunction with the United States Naval Hospital at St. Albans and in which Drs. Thomas Hoen, Isadore Tarlov, Ernst Herz, Joseph Moldaver and Professor Paul F. Hoefer participated was terminated the end of last year. In its place a more extensive contract designated for the study of all methods employed for the evaluation, operative repair and follow-up of peripheral nerve injuries in various centers of the country is under way. Dr. David D. N. Nachmansohn, for the Chemical Warfare Service, is studying the use of various potential toxic gas compounds for the treatment of muscle disorders, especially myasthenia gravis. Professor Elvin A. Kabat continues working with the United States Public Health Department in studies concerning blood group substances. Research activities at the M. Allen Starr Laboratories and at the laboratories of the Neurological Institute have been greatly increased since the war ended.

Professor Putnam, with Drs. Ludwig V. Chiavacci, Hans Hoff, and Hyman G. Weitzen, has continued his investigations of the mechanism responsible for the lesions in multiple sclerosis. The studies have now passed from the investigative stage and are applied clinically to a large number of patients suffering from multiple sclerosis. Professor Putnam and Dr. Herz have published a manual "The Motor Disorders in Nervous Diseases," to be used in conjunction with a teaching collection of moving pictures.

Professor Henry A. Riley is still occupied with his preparations for the Nissl atlas of the human brain stem and medulla oblongata. Professor Otto Marburg has published a variety of papers on neuroanatomical and neuropathological subjects, especially in relation to the cerebral blood supply and its anomalies. He is working on his projected atlas of neuropathology. Professor Leon H. Cornwall is preparing his textbook on neuropathology as previously reported.

Professor Hoefer with a number of co-workers has continued to work on several projects in clinical electrophysiology. With Drs. Edward B. Schlesinger and Harry H. Pennes a review of over six hundred verified brain tumors was prepared. With Drs. Hoff and Roger J. Pluvinaige a review of over one hundred treated cases of convulsive disorders is being prepared. Dr. Abraham Mosovich, under Professor Hoefer's direction, is preparing an electro-encephalographic classification of the epilepsies. Dr. Pennes has developed a method for the measurement of heat production in striated muscle in man. Various new apparatus are in development, among them the new analyzer for the electro-encephalogram, a new recording instrument for

all bio-electrical potentials and a new electric knife which obviates the old spark gap generator. A recording instrument for the operating room is in preparation. Dr. Schlesinger is working on the therapeutic effects of curare in spasticity, rigidity, and the dyskinesias in man.

Professor Frederick A. Mettler continues to direct the laboratories for physiological research, assisted by Drs. Arlindo Conde, Raul M. Carrea, Luis R. Guzman-Lopez, James W. Heath, and Robert G. Heath. He is studying the motor system in primates especially in conjunction with motor disorders resulting from extirpation of cortical structures, various portions of the basal ganglia and various portions of the cerebellar system. In conjunction with Professor H. Houston Merritt and Professor Putnam, he is preparing an introduction to neurology. Dr. Robert Heath, under his direction, is preparing a physiological analysis of electroshock therapy applied to various areas of the cortex and also the effect on animals of removal of the frontal cortex and subsequent removal of the caudate nuclei.

Professor Abner Wolf and Dr. David Cowen, in addition to their large share of the undergraduate and graduate teaching, have studied a variety of experimentally produced infectious diseases in primates. Professor Wolf, in conjunction with Professors Elvin A. Kabat and Alwin M. Pappenheimer, has studied the distribution of stainable enzymes and other chemical substances throughout the central nervous system.

Dr. Harry Grundfest in addition to directing the new peripheral nerve project is continuing his fundamental studies of electrical properties of single axones and fiber tracts of the central nervous system started and developed by him at the Rockefeller Institute. Professor Kabat has continued his work on blood groups and on the distribution of stainable substances through the nervous system. He has made a number of studies on other biochemical subjects and has prepared a large review on immunochemistry. He is also working on the subject of experimental production of multiple sclerosis and encephalitis by injection of various proteins derived from brain and lung extracts. Dr. Joseph Moldaver has continued his investigations of lower motor neurone involvement especially in poliomyelitis.

Dr. Nachmansohn and his co-workers, Drs. Theodore Bullock, Marjorie Berman, Hedda M. John, Christopher Coates, Mortimer A. Rothenberg, and Kenneth Sterling, continue the work started several years ago. It consists of studies of the system of esterases involved in the conduction of nerve impulses in providing the energy for the nerve impulse and in other fundamental related mechanisms. He has recently studied the effect of various new anticholine-esterases, some of which might provide means for the treatment of myasthenia and other disorders. Dr. Jerry C. Price is studying the effect of promising new compounds for the treatment of various aspects of epilepsy; Drs. Hoff and Frederick Zimmerman working with him. Drs. Zimmerman

and Bessie Burgemeister are working on a project trying to speed up the intellectual progress in mentally retarded children by treatment with glutamic acid.

As can be seen from this brief review, the scientific productivity of the Department continues at a high level. An indication of the standing of the Department in the field of neurology may be seen from the fact that of forty-two papers accepted for presentation at the meeting of the American Neurological Association in June, 1946, ten were wholly or in part the work of members of the Department.

## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

The three developments of special importance have been the approval of the Master of Science degree for advanced students in clinical fields of nursing, the establishment of the Out-Patient Nursing Service, and the structural additions to Maxwell Hall.

The addition to Maxwell Hall is nearing completion, and is scheduled for occupancy August 1, 1946. It provides for 102 additional student rooms, apartments for 22 members of the faculty, a splendid library and six reception rooms. The new facilities and the provision of housing for all students in the residence gives promise of a marked improvement in the living conditions for student nurses next year.

The Visiting Nurse Service of New York found it necessary to discontinue its program of instruction and demonstration in public health nursing for student nurses on March 1, 1946, because of insufficient experienced nursing personnel, but other arrangements were made to give them instruction and demonstration under the public health agency. Mrs. Margarete Martin Reisner was added to our instructional staff to develop this program.

In accordance with University policy, tuition fees for the entire nursing course have been increased to become effective July 1, 1946, as follows: Degree Candidates from \$300 to \$400 and Diploma Candidates from \$200 to \$250.

Student enrollment for the year is as follows:

	<i>Total</i>	<i>Degree</i>	<i>Diploma</i>
Third Year . . . . .	107	67	40
(11 of this group, members of U.S. Cadet Nurse Corps)			
Second Year . . . . .	101	67	34
(42 of this group, members of U.S. Cadet Nurse Corps)			
First Year . . . . .	112	67	45
(56 of this group, members of U.S. Cadet Nurse Corps)			

A tradition of the School of Nursing was renewed this year with notable success in the various measures aimed at reconstruction of the Florence Nightingale School of Nursing at Bordeaux, France. Following World War I, this school was established by the American Nurses Association as a memorial to the American nurses who had died in service. Miss Maxwell was one of its ardent supporters, and funds were donated by our own nurses for the library which was given in memory of Amebel Scharf Robert, 1916. The school building having been practically ruined in World War II, the American Nurses' Association is undertaking to rebuild it.

The coöperative venture which was started last summer employing ward assistants to help on the wards as vacation relief proved so successful it is being repeated this summer. Most of this group are incoming medical students.

Professor Eleanor Lee was elected Treasurer of New York County Registered Nurses' Association.

Changes in the teaching staff include the following: Miss Delphine Wilde, Instructor, has been doing advanced study at Teachers College in Orthopedic Nursing; Miss Constance Hamon has been part-time instructor in the outpatient department, alternating with Miss Wilde; Miss Marjorie Peto has been doing advanced work in Pediatrics at Teachers College while carrying a part-time position as Instructor in Babies Hospital. Miss J. Margaret Ada Mutch is an Instructor in Nursing, succeeding Mrs. Elizabeth MacQuigg; Miss Alice Hamilton resigned as Instructor in Nursing Arts on April 30, 1946; Miss Winifred Kaltenbach has resigned from the position as Assistant Professor of Nursing as of June 30, 1946 and Miss Peto will succeed her on July 1, 1946.

The generosity of both physicians and surgeons in rendering professional service and in assisting with the educational program is sincerely appreciated by The Department of Nursing.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor BENJAMIN P. WATSON, Executive Officer

The accelerated program of teaching has continued throughout the year but is now happily at an end. Looking back over the past four years, one gets the impression that, whilst there was no reduction in the content of the various courses and student attainment seemed to be high, there was too little time for the individual to digest what he learned, and that not so much will be retained as when the tempo was slower.

The staff is again complete, all members who were in the various services have returned to duty. We are proud of the work they did during the war.

Two attained the rank of full Colonel: Professor Eugene S. Coler and Alvin J. B. Tillman. Three attained the rank of Commander: Charles L. Buxton, Clinton P. O'Connell, and John B. Rearden. With their return the various special clinics and research projects, which had to be discontinued during their absence, will gradually get under way again.

The following contributions to literature were made during the year: *Further Experience in the Use of Transplanted Abdominal Fascia in the Relief of Stress Incontinence*: Am. Jr. Obs. and Gyn.: Vol. 50, No. 2, Pgs. 119-137, August 1945; W. E. Studdiford; *A Quadriovular Quadruplet Pregnancy*: Am. Jr. Obs. and Gyn.: Vol. 50, No. 2, Pgs. 184-190, August 1945; B. P. Watson; *Placental Senescence and the Onset of Labors*: Vol. 50, Pgs. 471-481, November, 1945; Howard S. Mandel, Samuel Graff, and Ada M. Graff; *Adrogen Therapy of Menopausal Symptoms in Cancer Patients*: Am. Jr. Obst. and Gyn., Vol. 50, No. 5, Pgs. 502-509, November, 1945; S. B. Gusberg.

The Trustees of the University have granted my request for retirement from my appointment as Professor and Executive Officer of the Department. I wish to express to them, to the Dean of the Faculty, and to my colleagues my appreciation of the privileges I have enjoyed during the past twenty years. I could not wish to my successor anything better than the same happiness that I have had in my work in Columbia University.

## DEPARTMENT OF OPHTHALMOLOGY

Professor JOHN H. DUNNINGTON, Executive Officer

The Department of Ophthalmology welcomes back from the Armed Services the following members: Professors Gordon M. Bruce, John P. Macnie, Alson E. Braley, and Drs. C. Gregory Barer, A. Gerard Devoe, and Edward Gallardo. Their presence will do much to facilitate an early return to prewar activities. A great loss was sustained in the resignation of our executive officer, Professor Phillips Thygeson, whose keen interest in the research activities of the Department will be greatly missed. Professor Ludwig von Sallman has been placed in charge of research. The undergraduate teaching program has continued to function smoothly due largely to the able supervision of Professor Maynard C. Wheeler.

Under the auspices of the Knapp Memorial Foundation in Ophthalmology, Professor Ludwig von Sallman has conducted in vivo experiments on the hydrogen ion concentration of the aqueous humor in physiologic and pathologic conditions; studies on the stability and penetration of penicillin ointments with various bases and penicillin salts; resorption from the vitreous. His investigations on the concentration of penicillin in the structures of



the eye after various methods of administering the antibiotic have done much to clarify the treatment of intraocular infections. Also, in collaboration with Dr. Leon Hoskins, a resident, Professor von Sallman completed a study on penicillin therapy of intraocular infections with anaerobes.

Professor Karl Meyer has continued his work on lysozyme and hyaluronidase. Out of these investigations have come the perfection of a highly accurate methods for the determination of lysozyme as well as the finding of a new lysozyme in very high concentration in the latex of some plants. In collaboration with Dr. Ellen Regan, a resident, he is also conducting experiments on the lysozyme content of the lachrymal secretion in various diseases of the conjunctiva and cornea.

Professor George K. Smelser has studied the healing of corneal wounds dealing specifically with the action of drugs and agents used in ophthalmology on the corneal epithelium. He has demonstrated for the first time the deleterious influence of Grenz irradiation on cell division and wound healing in the cornea. The inhibitory effect of adrenalin on mitosis in the cornea was shown to have a similar action on regenerating liver. He has also started a study on the preservation of corneas for use in corneal transplants which we are hopeful will lead to methods of preservation of this material for much longer periods.

Professor Manuel Uribe Troncoso has continued his investigations on glaucoma under a grant from the Mary W. Harriman Fund and has reported on the use of diathermic surgery on the ciliary body in glaucoma.

Professor LeGrand Hardy, Drs. Gertrude Rand and Catherine Rittler, co-workers in the Knapp Memorial Laboratory of Physiological Optics, have continued their work on evaluating current tests for color blindness and devising new tests to serve both for the detection of defective color vision and for an analysis of the type and extent of the defect. In coöperation with the New York State Psychiatric Institute studies on the incidence and significance of defective color vision among psychotics were started. The studies on reliability and validity of visual acuity test objects were continued.

The course for residents covering the basic sciences as related to ophthalmology was conducted from January to June. The Departments of Anatomy, Pathology, Pharmacology, Physiology, and Public Health generously contributed to this course which covered the subjects of pharmacology, anatomy of the special senses, general pathology, biostatistics, embryology of the eye, bacteriology, radiology, physiological optics, histology of the eye, biochemistry, surgical anatomy, physiology, principles of medical ophthalmoscopy, and medical illustration. Its success is due not only to the hearty coöperation of the other departments but also to the untiring efforts of Professor Hardy whose zeal and enthusiasm is a stimulus to all.

## DEPARTMENT OF ORTHOPAEDIC SURGERY

Professor ALAN DEFOREST SMITH, Executive Officer

The merger of the New York Orthopaedic Hospital with the Presbyterian Hospital, which became effective in October, 1945, and the integration of the Fracture and Orthopaedic Services make possible the establishment of a unit for the study of all types of diseases and injuries affecting the musculo-skeletal system which should be far-reaching. Many of the benefits from this merger will not become evident until it is possible to move the Orthopaedic Hospital to the Medical Center, but plans for making this union effective are being made and closer coöperation of the two Services already has been brought about.

The establishment of a unified service for acute injuries as well as for chronic conditions of the back and extremities at the Medical Center will provide material for teaching that is readily available and will make possible a better form of instruction for undergraduate students.

The Annie C. Kane Fellowships in Orthopaedic Surgery will continue and will make it possible to give a thorough training in this subject to a group who have completed their preliminary course as residents and assistant residents. It is expected that some of fellows will be candidates for the degree of Doctor of Medical Science.

The Department of Orthopaedic Surgery has been strengthened greatly by the addition of Professor Clay Ray Murray and his staff on the Fracture Service. Dr. Murray has been advanced to the rank of Professor of Orthopaedic Surgery. During the year Dr. Halford Hallock also was made Clinical Professor of Orthopaedic Surgery. Professor Murray will continue as head of the Fracture Service.

A program of investigation of many problems in the injuries and diseases of the musculo-skeletal system has been formulated and will be under the direction of Dr. Stephen S. Hudack, who has been made Associate Professor of Orthopaedic Surgery, and Dr. C. Zent Garber, Pathologist at the Orthopaedic Hospital.

## DEPARTMENT OF OTOLARYNGOLOGY

Professor JOHN D. KERNAN, Executive Officer

The undergraduate teaching in the Department during the past academic year has been continued as heretofore. Each group of students receives instruction in the methods of examination and the use of lights and instruments by Drs. George V. Browne and Arthur J. Cracovaner. Special in-

struction is given in hearing tests, vestibular tests, anatomy of the nasal passages by Professors DeGraaf Woodman, Edmund P. Fowler, Jr., Franz Altmann and Drs. Albert R. Kolar, Jules Waltner, and Daniel C. Baker. Professor Woodman's instruction is carried out in Neurological Institute. Each group makes ward rounds in the Presbyterian Hospital and Babies Hospital with Professor Kernan and Dr. Baker.

The hearing and deafness clinic has been further developed into three separate clinics under the direction of Professors Altmann, Fowler, and Woodman and Dr. William J. Greenfield. Over one hundred fenestration operations have been done during the past year and a study of the results is being checked at regular intervals in the hearing clinic. The work has been considerably augmented by the addition of a second audiometric technician.

Professor Fowler is in charge of the Research Laboratory where investigation is going on in the study of temporal bone pathology. The course for graduate students and residents in basic sciences given from January to July has been conducted by Professors Altmann, Fowler, Woodman, and Dr. Baker.

Professor George R. Brighton has continued the course in endoscopy and has given this course twice during the past year for the benefit of the residents and graduate physicians. Dr. Daniel C. Baker's proposal for establishing a special clinic for laryngeal diseases has been approved.

## DEPARTMENT OF PATHOLOGY

Professor HARRY PRATT SMITH, Executive Officer

The retirement of Professor James W. Jobling, Executive Officer of the Department, and of Professor Alwin M. Pappenheimer, his long-time associate, at the end of the preceding academic year, is acknowledged with regret and with the highest appreciation of their leadership during the past three decades. In looking back upon this period, it will be noticed that these three decades have witnessed an important change in viewpoint among pathologists—a change which decries undue preoccupation with mere description of the structural changes in disease. These two workers, and a few others of like mind, have made it clear that the pathologist must give attention to disease sequence in its broadest sense. It is now clear that the sequence can be best expressed by an integrated combination of structural data with chemical, physical, bacteriological, immunological, and clinical findings. Pathology, thus broadly conceived, can be regarded truly as the "Science of Disease," as indeed the name implies.

Professor Homer D. Kesten has taken up his duties as Pathologist at the

White Plains Hospital. He continues as Associate Professor, on a part-time basis, contributing to the teaching program, maintaining his program of research on arteriosclerosis, on spontaneous neoplasms in rats and on production of anti-Rh serum.

Dr. Edith E. Sproul, Assistant Professor, has accepted an important assignment as Professor of Pathology at the American University at Beirut. Her resignation at Columbia was effective June 30, 1946. Professor Sproul is known here as an inspiring teacher and an investigator of genuine ability. Her many friends at the Medical Center will regret her departure, but will rejoice in knowing that she is receiving well-earned recognition. Her appointment is a tribute to her and to the Department. Professor Hans F. Smetana returned last fall from active duty in the Army and on May 1, 1946, accepted an appointment as civilian pathologist at the Army Institute of Pathology. Dr. William J. Pyles completed his appointment in the Department on December 31, 1945, at which time he accepted an appointment in Medicine at the Goldwater Memorial Hospital. He has recently accepted an appointment as Associate Professor of Medicine at the American University in Beirut.

Dr. Herman N. Eisen completed his term as Resident. Dr. Robert A. Kritzler, who returned from service with the Presbyterian Unit overseas, returned to the Department as Instructor on December 10, 1945. Drs. Kathleen Kirk and Dean Davies completed their terms as Assistants; Dr. Dorothea G. Worcester will remain during the coming year as Instructor.

The depleted staff and the problems of reorganization have taken much of the time of the new Executive Officer. The Department has been fortunate in securing the services of Dr. Joseph E. Flynn, whose appointment as Assistant Professor began on November 5, 1945. Dr. Franklin K. Fite was released from the Navy and accepted an appointment as Instructor on April 3, 1946. Dr. Fred M. Davenport began as Assistant on June 1, 1946, and Dr. John B. Riley as Assistant on April 1, 1946.

Professor Henry S. Simms, with the assistance of Dr. Mary S. Parshley, has resumed the studies on the mechanism of fat deposition in atherosclerosis. Particular effort is being made to determine the source of the "anti-B Factor." Professor Simms, in charge of the program on aging, has established animal quarters with air-conditioning and uniform indirect lighting on South Property. This colony will produce rats as part of a coöperative program on aging by several departments. These activities are under the Committee for Research on Aging, consisting of Professors Smith, A. Raymond Dochez, Earl T. Engle, Magnus I. Gregersen, and Simms. The work of the program has been made possible through generous grants by the Josiah Macy, Jr. Foundation and by the Mary and Albert Lasker Foundation.

Professors Theodore F. Zucker and Dr. Lois M. Zucker have extended

their work on growth. In collaboration with Dr. Benjamin N. Berg, they have continued their studies on experimental lesions in the stomach of the rat. Professors Abner Wolf and David Cowen are studying the demyelinating lesions in the central nervous system of the monkey by the use of heterologous and homologous brain emulsions. Studies have also been made on the relationship of acid phosphatase activity in the central and peripheral nervous system, as related to repair following injury of neural tissue. Further work is being carried out on experimental prenatal toxoplasmosis, in an effort to clarify the mechanism of its production. Dr. Hans Kaunitz, working under a grant from the John and Mary R. Markle Foundation, is conducting experiments on the Vitamin E content of liver and muscle, in order to secure information as to whether the rat can synthesize Vitamin E. In coöperation with Professor Jacob J. Beaver of the Department of Chemistry, studies have been made on the nature of the reducing substances present in tissue extracts. Mrs. Julia T. Weld has been working on antibacterial substances produced by fungi. The antibacterial activity of elemental sulphur was investigated.

Dr. Herbert Stoerk, in conjunction with Drs. Herman N. Eisen and Manfred M. Mayer, has completed a series of studies on the influence of adrenal cortical steroids on the production of antibodies. Dr. Stoerk also collaborated with Professor Harry B. van Dyke of the Department of Pharmacology in a search for a curareform substance in thymus. Dr. Eisen also studied the histaminase activity of various organs with and without sensitivity to horse serum. Professor Beryl H. Paige has collaborated with Professor Wolf and Cowen in making a study of cases of suppurative meningitis which have failed to respond successfully to antibacterial agents. Dr. Dorothy H. Andersen has had a very productive year in the continuation of her work on the celiac syndrome.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN McINTOSH, Executive Officer

The return to academic duty of all of those members of the Department who were on leave during their term of military service has brought welcome relief from the stringencies in personnel to which the teaching organization had been subjected for the past several years. Although no attempt will be made here to record the names and military achievements of all those who participated in the war effort, it is appropriate to express once again the gratitude which all of us feel toward those who served in the Army or Navy and the pride we take in their contribution to the successful issue. At the same time it would be idle to suppose that their return marks an immediate resumption

of normal academic activity. Problems of personal readjustment to civilian life persist, as do also those of housing, of finding suitable office accommodations for practitioners, of bridging the gap between military medicine and civilian pediatrics, and of channeling research interest toward fundamental concepts.

The resignation of Professor Dever S. Byard, who had reached the retirement age, was accepted with great regret. Dr. Annie V. Scott left the Department in January to resume the chair of pediatrics in Cheeloo University Medical School in China, and Dr. Richard G. Hodges resigned in order to accept appointment as assistant professor in Western Reserve University. Other resignations include those of Dr. Weston M. Kelsey and Dr. Robert W. Ripley.

New appointments to the pediatric teaching staff comprise those of Drs. Benjamin C. Berliner, William A. Silverman (re-appointment after lapse of six months), and Paul E. Wilson.

In the course of the academic year the Commonwealth Fund generously granted extension, for an additional two-year period, of their support of Professor Hattie E. Alexander's studies on *Haemophilus influenzae* and of Dr. Dorothy H. Andersen's investigations of chronic nutritional disorders. Professor Richard L. Day's studies of the physiology of premature and newborn infants have been aided by a two-year grant from the John and Mary Markle Foundation; and, the Cutter Laboratories, of California, have given assistance to Dr. Paul A. di Sant'Agnese in his investigation into active immunization of young infants by simultaneous administration of multiple antigens. There were eleven publications from the Department, including Professor John Caffey's book on Pediatric X-ray Diagnosis, a notable contribution in a field thus far scarcely exploited.

Shortly after the resumption of civilian travel, following the cessation of hostilities, increasing numbers of visitors from other countries began coming to observe American methods of pediatric teaching, research, and practice. While the majority of them remain but a few days or so, going from one teaching center to another with the intent of making an overall survey of a large section of the country, still others seek an opportunity to spend several months of intensive study in a single institution. The Department welcomes these visits and values them as means of cementing friendly international relations among scholars of different lands.

In October and November Professor McIntosh visited Belgium at the invitation of the Belgian Ministry of Health and under the auspices of the National Foundation for Infantile Paralysis, for the purpose of studying an outbreak of poliomyelitis in that country and of conferring with physicians regarding methods of diagnosis and treatment of the disease.

There were no important changes made in the teaching program for medical students. Looking back over the results of the past four years, this Department is convinced that the accelerated schedule made necessary by the military emergency was not a pedagogic success.

## DEPARTMENT OF PHARMACOLOGY

Professor HARRY B. VAN DYKE, Executive Officer

The principal changes in the staff of the Department in the academic year were the appointment of Dr. John V. Scudi as Assistant Professor and the resignation of Dr. Maurice E. Krahle and Dr. Clifford L. Spingarn as Instructors. Dr. Solomon Disick returned from military service and will continue to work as a part-time Instructor. Dr. Alfred Gilman has been appointed Associate Professor from July 1, 1946. Dr. J. J. Barbosa Quental, Assistant Professor of Pharmacology in the University of Brazil, is a guest investigator who will remain in the Department during part of the coming academic year. Professor Jean La Barre, Head of the Institut Therapeutique of the University of Brussels, was the guest of the Department during the last part of the academic year. Drs. Alan Leslie and Leo Parmer have been on leave in military service.

All members of the Department participated in the teaching which has been successfully modified by introducing more intensive instruction in the third trimester. Lectures on biostatistics with applications to pharmacological problems, were given in the second trimester by Professor John W. Fertig. A course of graduate instruction for hospital residents has been organized. Dr. Solomon Disick has undertaken reorganization of the laboratory work for dental students for the purpose of better integration with dental science.

The Charles Christian Lieb Library of the Department of Pharmacology has been established through the initial gift of a fine library of scientific periodicals by Emeritus Professor Charles C. Lieb. This library is of inestimable value to the Department and the generosity of Emeritus Professor Lieb is deeply appreciated.

The investigative work of the Department was greatly hampered by lack of space; this handicap will be overcome as soon as new laboratories in the College become available. The work on the chemotherapy of leishmaniasis under an O.S.R.D. contract was completed by Professors van Dyke and Gellhorn and has been or is about to be published. A large number of organic and organometallic compounds were tested for possible therapeutic promise. Observations on the behavior of the most active compounds, derivatives of antimony, were made and new facts on tissue distribution and excretion in

relation to curative value were gathered. New work in endocrinology was started by Professor van Dyke studying the thymus gland and by Professor Gellhorn and Dr. Krah1 investigating new aspects of the relation of the adrenal glands to carbohydrate metabolism. Under the auspices of a contract with the United States Army, the pharmacology of a new antibiotic, bacitracin, is under study by Professors van Dyke and Scudi.

Funds contributed by E. R. Squibb and Sons and by Eli Lilly and Company have greatly assisted the Department's program of research. This aid is gratefully acknowledged.

## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

The reorganization of the teaching staff of the Department to a peacetime basis was accomplished within a few months after V-J Day. This involved several resignations and new appointments. Dr. F. J. W. Roughton, Associate in Physiology, resigned in September and returned to his former post in Cambridge University, England. Dr. Kenneth S. Cole, Associate Professor of Physiology, who had been on leave of absence since the fall of 1942, resigned in November to join the faculty of the University of Chicago. Dr. Elizabeth E. Painter, Instructor in Physiology, also on leave during the war resigned to become Assistant Professor of Pharmacology at Loyola Medical College in Chicago.

Dr. Howard J. Curtis, who was granted leave of absence in the spring of 1943 in response to a special request from the directors of the atomic bomb project and who later served as Director of the Clinton Laboratories at Oak Ridge, Tennessee, rejoined the Department in January and has been appointed Associate Professor of Physiology. Dr. Joseph H. Holmes, Assistant Professor of Physiology, was released from the United States Army Medical Corps in January and at once resumed his duties here. Dr. Wilson C. Grant, former Lieutenant j.g. in the United States Navy and Dr. Thomas H. Allen, First Lieutenant in the United States Army Air Corps have been appointed Instructors in Physiology. Dr. John L. Nickerson has been advanced from Assistant to Associate Professor of Physiology. Dr. Marjorie Zucker, formerly Instructor in Physiology, has been appointed Research Fellow under the Baruch Grant for Physical Medicine. Dr. Daniel Kline, who received his Ph.D. in Physiology during the winter, resigned from the University Fellowship on January 1, in order to accept a temporary position at the Long Island College of Medicine. Dr. Jerome Gersten, Research Fellow of the Baruch Foundation for Physical Medicine, has been accepted by the Department for a year's training in research and teaching. Miss Monica Reynolds, Mr. Herbert



Borison and Miss Enid Neidle have been appointed Assistants in Physiology for the coming year.

Several important changes have been made in the teaching program. Post-graduate teaching in physiology for returning veterans, which has been made possible by a grant from the W. K. Kellogg Foundation, has been organized and directed by Professor Holmes. All senior members of the staff will take part in this instruction. The course covers those phases of physiology which have the most direct bearing on the practice of medicine and surgery.

Beginning next fall the Department will, for the first time, give a series of advanced courses in physiology in which the enrollment will be limited. These are designed for graduate students in physiology, for especially qualified medical students and for medical and dental graduates holding research fellowships in physiology. The advanced training offered in these courses will provide opportunity to gain experience in modern experimental techniques and their applications to current investigations. For the first time since the beginning of the war, the Department is offering a summer course in physiology, under the direction of Professor Holmes. The great demand for such a course is evident from the heavy enrollment. Professor Nickerson collaborated with the Department of Ophthalmology in the teaching of basic science to a group of residents in ophthalmology.

With the end of the war it has become possible to go forward with plans long contemplated for the development of teaching and research in electro-physiology and other phases of bio-physics. This program is being undertaken mainly by Professors Curtis and Nickerson. It is the conviction of the Department that the field of so-called bio-physics can best be advanced when intimately associated with the main currents of mammalian physiology, from which bio-physics has in the past drawn a large part of its vitality and to which it contributes so greatly. Segregation of bio-physics is also regarded as a serious drawback in the training of graduate students in bio-physics, for such students must have a broad knowledge of classical physiology in order to be competent to fill the available teaching positions in our medical schools and universities.

The investigations on traumatic shock which the Department carried out under contract with the Office of Scientific Research and Development during the war have been officially terminated. Out of this work has come approximately fifty scientific papers dealing with various aspects of the fundamental physiological disturbances in shock. Some of these studies such as those on blood volume changes in experimental and clinical shock have been of unquestioned practical value in relation to therapy, and the methods which were developed for investigating circulatory disorders have proved to be such useful tools that several of the investigations on shock are being carried on without interruption. Drs. William L. Nastuk, Clarissa H. Beatty, and

Daniel Kline are continuing with the quantitative study of the rate of recovery from the metabolic disturbances in shock after transfusion with blood and with blood substitutes modified in various ways to speed recovery.

Another line of investigation begun by Professors Nickerson and Curtis during the war and which has shown great promise, is the development of the ballistocardiograph for measuring cardiac output. During the past year Professor Nickerson has collaborated with Drs. Stead, Warren, and Brannon of Emory University in Atlanta, Georgia, as well as with our own Departments of Surgery and Cardiology.

Professor Shih-Chun Wang has brought forth additional convincing evidence on the neurogenic factor in shock. Miss Monica Reynolds is investigating the therapeutic value of saline in hemorrhagic shock with a view to evaluating the effects of the sodium ion. Dr. Marjorie Zucker working under the Baruch Grant is engaged primarily in investigations of capillary and lymphatic phenomena and has recently contributed a paper on bleeding time. Mr. Richard Lee, a third year medical student, is investigating the relation of the endocrine glands to the control of the capillary circulation. Dr. Ingrith Deyrup is continuing the studies of internal fluid exchange, utilizing radioactive isotopes; and, Professors Holmes and Gregersen are resuming their prewar researches in the field of water and electrolyte metabolism. Professor Curtis is at present concerned with the design and construction of modern equipment for the electro-physiological studies which he is undertaking. Mr. E. Freeman Hersey, a third year medical student, is spending several months collecting blood volume data on surgical patients under the supervision of Dr. Harold D. Harvey of the Department of Surgery and Professor Gregersen. Professor Walter S. Root and Dr. Wilson C. Grant are investigating the mysterious disappearance of red cells from the circulation which occurs under certain experimental conditions and which has made difficult the interpretation of blood volume data in special clinical conditions.

Professor Root has been elected Chairman of the New York Section of the Society of Experimental Biology and Medicine. Professor Gregersen has been selected as a member of the Medical Teaching Mission to Poland, jointly sponsored by the U.N.R.R.A. and by the Unitarian Service Committee, and will be in Europe during the summer.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

Modern progress in psychiatry to which the Department is an active contributor is slowly but definitely influencing all branches of medicine and sociology. This is due in a considerable degree to the insistence of the psychiatrist

on studying the whole individual, the personality as well as his diseases. The sooner a real understanding is reached between internal medicine and psychiatry the more rapid will be the progress of medicine as a science. In medicine the mind has always been deemed important theoretically, but it is usually left out of consideration or given scanty attention when bodily diseases have been under practical therapeutic consideration.

The staff of the Medical Psychiatric Service has remained the same as last year with Drs. Viola Bernard, Louise Brush, and Ruth Moulton on regular service, assisted by Dr. Sadie Zaidens. Dr. Kenneth Kelly, on leave of absence with the Navy for four years, returned to duty on the Medical Service in February. Dr. Edward S. Tauber has just returned from leave after four years in the Army.

Forty-five psychiatrists attended the Department of Psychiatry, Vanderbilt Clinic, during the year. Dr. Zygmunt A. L. Piotrowski did the psychometric and Rorschach examinations, as well as those requested by Babies Hospital.

Professor Lawson G. Lowrey joined our staff in September, coming first to assist in the instruction of military students in the course in Military Neuropsychiatry. Drs. Alfred Schick, J. Lloyd Morrow, John W. Welsh and Leon L. Altman have served as volunteer assistants. Dr. Justin L. Greene and Hugh McHugh have returned from the armed services.

Professor Lewis was on leave during November and December of 1945, during which time he was on active duty for the International War Crimes Tribunal assigned to the Nuremberg trials.

In addition to the usual instruction afforded medical divisions of the Department of Psychiatry the members of the Department conducted the third intensive course in neuropsychiatry for military officers, from September 1 to November 24, 1945. Many favorable reports have been received regarding the practical value of these military courses, three of which were given to a total of 260 students.

Professor George E. Daniels has confined most of his teaching to the Psychoanalytic Clinic which he has organized. Members of basic science and clinical departments participated. Clinical conferences on cases worked up by students in the Psychosomatic Clinic were held as part of the course.

For a number of years the Department of Physiology, with the coöperation of other departments of the medical school, has conducted a weekly Correlation Clinic throughout the year illustrating various applications of anatomy, physiology, and biochemistry to clinical and laboratory medicine. This year Professor Daniels was invited by the Committee on Correlation Clinics to give the last of the series on physiological manifestations of emotion. Patients with such conditions as peptic ulcer, essential hypertension, Raynaud's disease, ulcerative colitis, were shown not as disease entities, but to give examples of

psycho-physical interrelationships. Consideration of psychological medicine in the first year in relation to physiology and as a part of total integrations of the organism is an important advance.

Dr. Moulton is preparing a series of lectures to be given in the fall to graduate dental students on psychiatry in psychosomatic medicine as applied to dentistry. Dr. Kelly will give two lectures this summer and a series of fifteen lectures next spring on psychosomatic problems as a part of the course given for physical therapists. Inclusion of such training in the curriculum of dentistry and physical medicine represents a significant trend not only toward a better understanding of emotional factors, but in their greater integration with medicine in general.

During the year fifteen Vanderbilt Clinic psychiatrists participated in the teaching program of the third year students, and again took part in the course in military neuropsychiatry from September 1 to November 24.

There has been, as in the past, one psychiatric social worker in the Department, and as usual, the New York School of Social Work assigned two students for field work training in psychiatric social work. Drs. Henry H. Hart and Fanny Hann-Kende have again held regular conferences with the social work students in a joint program with the Neurological Institute assisted by Dr. Martin Schreiber.

The new Group Teaching Clinic at Vanderbilt Clinic has the services of psychiatrists one afternoon a week at the present time. The necessity of manning the Group Clinic with one psychiatrist each afternoon, five days per week, is an obligation that should be taken very seriously, and some plan must be worked out whereby this will be covered.

The new clinic of the Psychoanalytic Clinic for Training and Research was opened at the Vanderbilt Clinic in March, 1946. Drs. Ackerman and Bernard assisted in the teaching of the students and Dr. Ackerman was responsible for the direct operation of the Clinic. This Clinic will afford a valuable medium for intensive treatment of patients referred from the medical wards and from other departments of the Hospital and Vanderbilt Clinic, as well as the acceptance of special outside referrals.

Fifty-two articles and books have been published by members of the Department during the year and many additional papers and addresses have been presented at scientific meetings.

Members of the Department on duty at the Psychiatric Institute are all engaged in research for the major portion of their time. Among the problems at present under investigation are a number of studies on shock treatment of mental disorders, and their physiological components; the genetics of old age, tuberculosis, and dementia precox, particularly, co-twin studies which include a large number of normal and abnormal persons; experi-

mental epilepsy; deficiency and allergic disorders; and several problems in neurochemistry.

The financial support of the Josiah Macy, Jr., Foundation has enabled Dr. David Abrahamsen to study criminal offenders and their families. It was found that all of the offenders studied had suffered from bodily disorders of a psychosomatic nature. Of the control patients, all had some manifestations of a psychosomatic disorder, although not so severe as in the offenders. More significant was the presence of psychosomatic disturbances in members of the offenders' families. Here, psychosomatic disorders were constantly found either in the mother or father or in one or more siblings of the offender, in contrast to the control patients, where the psychosomatic disturbances were less frequent. The symptoms were most frequently located in the gastrointestinal tracts. Some cases studied seem to indicate that the crime committed might reflect a certain emotional state rather than a personality type.

Funds furnished by the Rockefeller Foundation to study "the significance of genetic factors in the incidence of nervous and mental diseases peculiar to old age" have been utilized by Dr. Franz Kallmann who has organized an appropriate staff of assistants to pursue this work in coöperation with New York State mental hospitals, public and private homes for the aged, and the various State, City, and County Welfare agencies for the distribution of old age assistance.

Dr. Louise Brush is continuing her study of hypertensive and coronary patients. Dr. Moulton expects to publish her findings on several cases of ulcerative colitis. Dr. Moulton and Professor Daniel E. Ziskin of the Department of Dentistry published the results of their research in glossodynia in the *Journal of the American Dental Society* and are completing final revision on research done on oral and vaginal smears as a research technique which will probably be published in the *Journal of Clinical Endocrinology*. Dr. Viola Bernard is at present writing up her research on sterility studied in a child adoption agency and with Dr. Kelly is preparing a paper on *Psychiatric Aspects of Sterility*.

## SCHOOL OF PUBLIC HEALTH

Professor HARRY S. MUSTARD, Director

The teaching activities of the School of Public Health in the academic year 1945-1946 were unusually heavy. Thirty-seven candidates for the Master of Public Health degree were registered during the year. Twenty-four candidates for the Master of Science degree were registered in Hospital Administration, and there were a number of special students in Biostatistics.

The teaching program followed a fairly well established line, except in the case of Hospital Administration for which a new curriculum was instituted. This is a two-year course, one academic year in residence, plus a calendar year as administrative assistant under supervision of this School in an approved hospital.

In the field of research, Professor Frederick B. Flinn has continued his studies in relation to the action of alcohol in lead poisoning which is being prepared for publication. Professor Flinn has also continued his radium studies and reports that apparently because of precautions taken in industrial plants concerned, none of the dial painters under supervision are suffering any ill effects from their employment.

Professor Harold W. Brown with Dr. Kathleen L. Hussey, Dr. Norman Thetford, and Mr. Roger W. Williams, has continued his studies on filariasis both in the laboratory and in the field at St. Croix, Virgin Islands. These studies are supported by the John and Mary R. Markle Foundation and were originally undertaken in coöperation with the United States Navy. Professor Brown, with his assistants, has also continued his studies in amebiasis and in chemotherapy of Paragonomiasis and Enterobiasis. Professor David Weinman has continued his research in the field of protozoölogy with special emphasis on the blood flagellates and intestinal protozoa.

The following retirements and resignations have been reported with regret: Dr. Ernest L. Stebbins, Professor of Epidemiology, resigned in April, 1946, to accept an appointment as Professor of Public Health Practice, and Director of the Johns Hopkins University School of Hygiene and Public Health; Dr. Frederick B. Flinn, Associate Professor of Industrial Hygiene, retired as of June 30, 1946; Dr. David Weinman, Assistant Professor of Parasitology, resigned as of June 30, 1946; and Dr. Margaret P. Martin, Instructor in Biostatistics, resigned in August, 1945, to accept an appointment as Assistant Professor of Biostatistics.

Additions to the teaching staff include: Dr. Leonard J. Goldwater, Professor of Industrial Hygiene, July 1, 1946; Dr. John E. Gorrell, Professor of Hospital Administration, September 1, 1946; and, Miss Lillian R. Elveback, Instructor in Biostatistics, January 1, 1946.

## DEPARTMENT OF RADIOLOGY

Professor Ross GOLDEN, Executive Officer

The return of the following members of the Department at the conclusion of the war has been welcomed: Professor Robert P. Ball, Dr. Gerald M. Peterson, Dr. Vincent M. Whalen, Professor Ernest H. Wood, Dr. Lawson E.

Miller and Dr. Eric J. Ryan. Professor Murray M. Friedman is still in the service but anticipates release in the near future.

Dr. Raymond W. Burford has resigned to enter private practice in Dallas, Texas; Dr. Paul H. Ducharme, to begin practice in Orlando, Florida; and, Dr. Arthur F. Hunter to practice radiology in Portland, Oregon.

Professor Golden has been honored by the election as President of the American Roentgen Ray Society; as Honorary Member of the Cuban Radiological Society; and by appointment as Chief Consultant in Radiology for Branch Area Number Two of the Veterans Administration. He has given several lectures including the Pancoast Lecture at the Philadelphia Roentgen Ray Society; a lecture to the staff of the Grace Hospital in Detroit to commemorate Roentgen's one hundredth anniversary; and, another to the New York Gastroenterological Society. He gave the Phi Delta Epsilon Lecture at the Jefferson Hospital in Philadelphia. Professor Golden, together with Dr. Paul H. Ducharme, published an article on the clinical significance of deformity of the cecum in amebiasis. In April he published an article on the preparation and presentation of medical papers.

Professor Maurice Lenz has continued during the past year, together with Professor Titus C. Evans, the study of the effectiveness of radioactive sodium in leukemia and polycythemia. He has published papers on radiotherapy in cancer of the breast, radiocurability of cancer, roentgentherapy of epitheliomas of the skin and tumor dosage and results in roentgentherapy of breast cancer. He lectured on the radiocurability of cancer at the Medical Society of the County of New York and on roentgen and radium therapy of cancer at the New York State Department of Health; he also spoke at the meeting of the New York Roentgen Society, and at the American College of Radiology Post-Graduate Course. Professor Lenz gave a course of lectures in Spanish on x-ray and radium therapy of cancer in Bogota, Colombia. At approximately the same time he attended the Second Mexican Cancer Congress and lectured on cancer of the breast, larynx, nasopharynx, and the principles of the treatment of cancer. He also lectured in San Salvador and in Costa Rica and was awarded an Honorary Fellowship by the College of Physicians and Surgeons of Costa Rica and by the National Academy of Medicine of Colombia. Professor Lenz, with Professor George Cahill and Dr. Charlotte Donlan, presented the results of the treatment of cancer of the bladder by cystotomy and insertion of radium needles at the meeting of the American Radium Society.

Professor James A. Corscaden, Dr. Saul B. Gusberg and Dr. Donlan have started the use of interstitial radium in advanced cancers of the cervix.

Since January, 1944, members of the Radiological Research Laboratory have been engaged mostly in research relating to the atomic bomb project under the Manhattan District of Engineers. Professor Gioacchino Failla has served as

Consultant to the Metallurgical Laboratory of the University of Chicago in connection with the Plutonium project, and also served on Section 17.2 of the National Defence Research Council. Professor Failla was a member of the American Standards Association War Committee on the Safety Code for the Industrial Use of X-rays and served on the Radiology Panel of the Growth Committee of the National Research Council. Professor Failla's lecture originally prepared for the Caldwell Lecture at the American Roentgen Ray Society for 1945, "Protection against High Energy Roentgen Rays," was published in the Memorial Number of the American Journal of Roentgenology and Radium Therapy which commemorated the fiftieth anniversary of the discovery of the Roentgen ray. Other papers published from the Radiological Research Laboratory were: "The History of Dosimetry in Roentgen Therapy" by Professor Edith H. Quimby; "The Use of Radioactive Sodium as a Tracer in the Study of Peripheral Vascular Disease" by Dr. Beverly C. Smith and Professor Quimby; "The Tolerance Dose or Tolerance Intensity" by Professor Quimby; and, "Studies of the Effects of Radioactive Sodium and of Roentgen Rays on Normal and Leukemic Mice" by Professors Evans and Quimby.

Professor Failla lectured on x-ray therapy at a special commemoration of the fiftieth anniversary of the discovery of the Roentgen ray at the American Physical Society meeting in St. Louis; he also lectured on the physical basis of dosage in radiation therapy at the American College of Radiology Refresher Course, on radiation therapy at the Sigma Pi Sigma Society, and on atomic energy and medicine at the New York Roentgen Ray Society, at the Yonkers Academy of Medicine, and at the Physics Club in Philadelphia.

Professor Quimby gave several lectures on the atomic bomb to lay groups. She lectured on dosage determinations in radiation therapy at the American College of Radiology Refresher Course in February and to the Philadelphia Roentgen Ray Society; and to the Hunter College Faculty Science Club; and at the Columbia University Physics Department Colloquium she lectured on artificial radioactive substances in biology and medicine. She also talked on atomic energy in radiology at the New York State Medical Society and at the Pennsylvania State Radiological Society, and on atomic energy in medicine at the Manhattan Eye, Ear and Throat Hospital and the North Bronx Medical Society. She also lectured on atomic energy in medical research at a staff conference of the Wellcome Research Laboratories.

Professor Evans lectured on the influence of quality and rate of administration on the biological effects of radiation at the American College of Radiology Refresher Course and gave a lecture at the American Association for Cancer Research on effects of radioactive sodium on leukemia in mice. He has received leave of absence to take part in "Operation Crossroads."



A number of appointments were made in the Department this past year. Dr. Ida Sterman and Dr. Stephen A. Forbes were appointed Assistants in Radiology. Drs. Arthur E. Childe and Lloyd H. Smith have joined the Department as Volunteer Assistants. Leslie A. McClintock, Ph.D., was appointed Associate in Biochemistry and was assigned to the Radiological Research Laboratory. Dr. McClintock, in association with Professor Friedman, succeeded in attaching a heavy metal to an antibody and showed that the antibody carried the heavy metal specifically to the antigen. Dr. McClintock is now carrying on similar observations in connection with mouse tumors.

## DEPARTMENT OF SURGERY

Professor ALLEN O. WHIPPLE, Executive Officer

In retiring from the Chair of Surgery after twenty-five years of service, there are many observations that present themselves that should be of interest to the Department of Surgery and to the School of Medicine. During this period the Surgical Service has gone through the process of becoming a University Clinic dealing with both undergraduate and graduate problems; entirely different problems in their makeup and philosophy.

During the past twenty-five years there have been many changes in the plan and scope of surgical teaching in the School, but some of the courses have been kept intact in plan because of their proven worth. The first of these has been the second year course dealing with the fundamental principles of surgery, such as inflammation and injury of tissues and the healing of wounds. This course was started by Professor William C. Clarke in 1905 and has been continued by Professors A. Purdy Stout, Virginia Kneeland Frantz, and Harold D. Harvey. The Clinical Clerkship, which was formerly given in the fourth year, was changed to the third year in 1932. This improved the third year teaching but at the expense of the fourth year, when the students worked in the Out-Patient Clinic in the mornings. This defect has been corrected by having the third year clerkship lengthened to include work in the Out-Patient Clinic, leaving the fourth year students free to work in the recently organized Vanderbilt Group Clinic. In this Clinic the student studies the new admissions first hand, presents them to the instructors, hears the discussion of differential diagnosis and consultations from the specialists called in to examine the patient, and follows and reports on the therapy in whatever service of the Hospital it is carried out, which is a great advance in teaching.

Our aim in undergraduate teaching has been to emphasize the fact that surgery is a branch of the science of Medicine, differing from internal medicine only in therapy. No attempt has been made to teach the undergraduate

the elaborate techniques of operative surgery. This is a graduate subject designed for the training of residents. The intention has been to emphasize the diagnosis of the most common acute and chronic lesions requiring surgical therapy—especially those needing immediate operation—the indications and contraindications for surgery, the pre- and post-operative measures to be used to avoid complications, to stress the results of delayed diagnosis, and to give a fair presentation of the prognosis as determined by follow-up results.

During the past year numerous meetings have been held with the younger instructors and with the Attending Staff in reviewing the problems of surgical teaching. At present, a group from the Medical Department are meeting with a group from the Surgical Department to revise and improve the Combined Clinics which are given weekly to the third and fourth year students. This is one of the most important teaching exercises that is given in the school and will do more to imbue the medical student with the essential relations between medicine and surgery than any other doctrine.

In the graduate field the two types of instruction and training, post-graduate and resident, have been followed, but more emphasis has been placed upon the training of long-term residents, for in surgery, which is a combination of the science and art of therapy carried out by operative procedures, individual practice and experience of the young surgeon, under proper senior supervision, is essential to the learning and application of the many techniques. The residency is really an apprenticeship in which increasing responsibility and operative work are given the resident as he progresses through the grades of his training. It is best done in a University Hospital in close contact with the laboratories, teaching facilities, and the staff of the Medical School. It is in this most acquisitive period of the surgeon's career that staff rounds and round-table conferences provide the best type of instruction. We have made every effort to emphasize and carry out this kind of resident training.

During recent years there have been an increasing number of post-graduate surgeons, native and foreign, who have spent from two to six months in attending our surgical rounds, the Combined Clinics, and the operations and conferences on the surgical service of the Hospital. The demand for this is always a measure of the originality and reputation of a surgical clinic.

In 1921 plans were made to reorganize the clinical services of the Presbyterian Hospital in preparation for the Columbia-Presbyterian Medical Center. The new surgical staff consisted of Director Allen O. Whipple; Visiting Surgeons, Hugh Auchincloss, Fordyce B. St. John; Associate Visiting Surgeons, William Barclay Parsons, Wilder G. Penfield; Surgical Pathologists, William C. Clarke, Arthur Purdy Stout. This was a small group with two small services. All were young and knew each other well. Each was beginning to develop some field in general surgery. Each had trained under such

outstandingly able and experienced surgeons as Blake, Brewer, Lambert, and Eliot. They had taken part in the development of the Follow-up and the Unit Record system—two pioneer hospital projects at that time. They brought the best traditions of the old hospital in the reorganization of the School and Hospital affiliation under the wise and able leadership of their close friend and associate, Dean William Darrach.

There were then two unexplored fields of surgical organization in this City. One was full-time service, the other was surgical residencies. Both these systems had been and were being tried in other University Clinics, but for a number of reasons, which constitute a chapter in themselves, had not been put into practice in New York. For the period of seven years before moving to the new Center, the full-time system was tried, in one form or another, and finally a satisfactory arrangement was reached which permits a surgeon to work on full- or part-time basis, in the way most favorable to his capacities in teaching, investigation, and practice. Now the policy of limiting a surgeon's work to the Hospital with an office in the building is accepted by the majority and has eliminated the artificial barrier between full-time and part-time staff.

The lecture system in the School and the resulting extra-curricular "quiz" groups in the decades 1880-1910 developed an intern tradition in the hospitals of the City which had a malign influence on the training of younger surgeons. Because of the existing tradition in favor of the short time limited surgical internships in the hospitals in New York, the long time resident training of surgical interns was called Surgical Fellowships. This training consisted of a year as Junior Fellow following a surgical internship. From six such Junior Fellows, two were chosen for two more years as Senior Fellows. This plan soon demonstrated to the most skeptical critics that such training developed surgeons qualified to do major surgery and to take responsibility, gave the Visiting Surgeons incomparably better assistance, and provided for better care for the patients and important teaching to the surgical clerks. Furthermore, this training encouraged and stimulated original investigation.

The first four Senior Fellows were Drs. Jerome P. Webster, Harold D. Harvey, Lawrence W. Sloan, and Richmond Moore. Their work was so outstanding in separate fields that they were appointed as Assistant Visiting Surgeons. Soon after this the Fellows were designated as Residents and, before the war imposed an abbreviated training, five-year residencies were held, including one year of medical internship. During these years 112 surgeons have been trained for varying periods. Many of these Residents have since then done outstanding surgery and have filled important positions in different parts of the country. The October, 1946, number of the *Annals of Surgery* is to be made up entirely of contributions by former Residents. These are papers selected from a great many submitted for this issue of the *Annals*.

To the original staff there have been numerous additions. Of the group before moving to the Medical Center, two, Dr. Wilder G. Penfield and Dr. William Cone, left to be Director and Assistant Director respectively of the new Neurological Institute at McGill University. Both are now international figures in neurological surgery. In 1922, Dr. John M. Hanford joined the staff and has remained. In 1924, Dr. Charles L. Janssen came from the Depage Clinic in Belgium and made a unique place in our respect and affections. His untimely death in 1941, after several years of a brave fight against a serious illness, cut short his sterling work on the surgery of the colon and rectum. The only other losses during these years were those of Dr. William C. Clarke and Dr. Frederick T. van Beuren. Dr. Clarke, after more than twenty years as rare mentor, teacher, and able pathologist, retired in 1929. His interest in the Department terminated only in his death in 1943. Dr. van Beuren, after moving to the Medical Center, devoted his time to work as Associate Dean of the Medical School, but continued his interest in the Surgical Service. He died in 1943, beloved by all of us.

Since moving to the Medical Center with the increase in the size of the Surgical Staff, laboratory and clinical, new services have been developed notably in the fields of surgery of the extremities, in plastic surgery, in thoracic surgery, in vascular surgery, in tumor surgery, and in thyroid surgery.

Under the leadership of Professors Darrach and Clay Ray Murray, the surgery of fractures and the acute lesions of bones and joints has attained a unique position in this country. The amalgamation of this service with the New York Orthopedic Hospital in the Medical Center promises to develop the most modern and original surgery of the locomotor system in any clinic. Studies in the biochemistry of bone repair, the differences of electropotential in various metals used in the repair of fractures, and the use of antibiotics in the pyogenic infections of bone have been and are being studied by this group.

Professor Jerome P. Webster has developed the outstanding Plastic Surgery Service for resident training in this or any other country. The demand for resident training is so great from candidates from the United States and foreign countries that only a small fraction of those applying can be given appointments.

The Division of Plastic Surgery has grown to its present proportions since 1928, when the Medical Center was opened and Professor Webster was recalled to New York from Fellowship studies in St. Louis. The division now consists of two surgical divisions, the first being in charge of Professor Webster and the second in charge of Dr. Thomas W. Stevenson, Jr., two assistant residents, and two residents. In addition to the professional staff there is a medical artist, technician, secretary, secretary-librarian, and a research assistant.

The nucleus of what now is probably the most outstanding library devoted to plastic surgery in the world was purchased by Professor Webster in 1932. It has grown to approximately 7,000 volumes, reprints, and theses, and is valued at over \$15,000. It has been donated by Professor Webster to the Library of the College of Physicians and Surgeons, Columbia University.

The Division of Plastic Surgery contributed to the war effort in various ways. Four courses of twelve weeks each were given in 1942 and 1943 to eighty-two Army Medical and Dental officers, with approximately seventy instructors participating in each course. These were given under Professor Webster's direction in accordance with a contract drawn between Columbia University and the United States Government.

In 1945, Professor Webster was appointed Consultant to the Surgeon General of the United States Army and inspected the various plastic surgery centers in this country.

The surgery of the chronic, non-tuberculous infections and the tumors of the lungs, pleura, and thorax was assigned to Dr. Richmond L. Moore in 1928 and has since then, with the coöperation of Professors George H. Humphreys, II and Arthur H. Blakemore, included the vascular surgery of this field. At present this type of surgery constitutes one of the most important groups of the major surgery being done in the Department.

In vascular surgery, Professor Blakemore has established an international reputation in his wiring of aneurysms, his non-suture anastomosis of blood vessels, especially in shunting the portal blood to the systemic venous system in portal hypertension, and his experimental work in the treatment of mitral stenosis. With Professor Humphreys, he is one of the modern school of surgeons contributing to the problem of treating deficient or narrowed vascular beds by shunting the blood stream. To overcome the danger of clotting by the suture method in uniting vein to vein or artery to vein, Professor Blakemore has developed a newer technique of using vein-lined vitallium tubes for this shunt or anastomosis. This method has, during the past three years, been applied to the operation for shunting portal blood to the general venous circulation. During this time, some twenty-five such operations have been done, twelve of them uniting the portal vein to the cava (the so-called Eck fistula), and the others by uniting the splenic vein to the left renal vein. No other clinic has had this experience.

In thyroid surgery under the leadership of Professors William Barclay Parsons and Lawrence W. Sloan, there has been constant coöperation of the Medical Service in preoperative and follow-up studies of these patients in the combined Thyroid Clinic. In the past ten years we have averaged as many thyroid operations as hernioplasties.

Another example of the value of combined clinics with Pathology and

Medicine is the growth of the so-called Spleen Clinic in which, since 1928, disorders of the spleen, the hemopoietic system, and the hepatosplenopathies have been studied before and after treatment by the combined group. This has improved the knowledge of these disorders, has determined the therapy, has made the teaching in these disorders authoritative, and has stimulated research work in the anatomy, pathogenesis, and pathology of the splenopathies.

The surgery of tumors in general surgery covers a number of systems, notably those of the lymphatic, the pulmonary, and the gastrointestinal tract and its related organs and of the connective tissue structures. In the field of the head and neck, Professor John M. Hanford has, with the surgical pathologists and Professor Cushman D. Haagensen, developed a Tumor Clinic to which most of the cases of tumors of the parieties are referred. This, again, is a combined clinic demonstrating the advantages of group study.

Professor Hugh Auchincloss has been especially interested in the diagnosis and treatment of breast tumors and, since 1912, has contributed fundamentally to the teaching of this subject, both to the undergraduate and graduate students. His studies of the lymphatic spread of cancer in general have been outstandingly significant. Another field to which he has contributed so soundly is the surgery of the hand. In this his studies are authoritative.

Because of his knowledge of the pathology, the surgery, and the radiotherapy of breast tumors, as well as tumors in general, Professor Haagensen has contributed soundly to the Clinic, together with Professors Stout and Frantz in the Surgical Pathology Laboratory.

In the gastrointestinal field, especially the radical operations for cancer and for ulcerative lesions, there has been a notable increase each year, both in number and scope. In the lesions of the stomach and duodenum, Professors St. John and Harvey have been especially interested, and they have made follow-up studies that are unequalled in any other clinic.

Before 1935, radical operations for tumors of the pancreas were rare, and very few surgeons attempted them. In that year the first radical operation in many years was reported from this Clinic. Since then there have been some forty-two such procedures (involving the removal of the head of the pancreas, the duodenum, part of the stomach, and terminal portion of the common duct), a larger number than in any other clinic. In addition, there have been three total pancreatectomies and thirty-two excisions of tumors of islet cell tissue from the pancreas. These patients had been having uncontrollable insulin shock because of overproduction of insulin by the islet cell tumors. These operations, together with those for cysts and calculi of the pancreas have totalled 110 and have given the Clinic authority in the field of pancreatic surgery.

The Laboratory of Surgical Pathology has from the beginning been so much a part of the Department of Surgery and has so constantly contributed to the development, in training our Attending and Resident Staff in the appreciation of the pathology of the lesions studied and operated upon, that a review of the growth of this branch of the Department is essential in this report. This laboratory was started in 1905 in the old building with a desk and a pioneer spirit by Dr. William C. Clarke. In 1909 it was moved to the old Hospital building with the affiliation of the School and Hospital. By 1921 some 2,100 examinations had been recorded. The staff consisted of Drs. Clarke, McWhorter, and Stout. With the move to the Center, it was housed on N floor in the College building where it has grown under Professor Stout's direction to the largest laboratory of Surgical Pathology in this country.

Under the supervision of Professors Stout, Frantz, Haagensen and Dr. Raffaele Lattes during the past year, thirty-two men have received advanced training in the laboratory. During the past year the consultation service covered sixteen states, the Canal Zone, the Philippines, and nine foreign countries. In addition to all other departments and affiliated hospitals of the Medical Center, seventeen outside institutions used this service regularly, and many others sporadically, for consultation.

Among many research projects that have been seriously curtailed by the war, those that have been carried on during the past year should be mentioned: the development of absorbable cellulose material to control hemorrhage, which was carried out as a National Research project by Professor Frantz and Dr. Lattes; the milk fractionation studies in a mouse dairy by Professor Haagensen and Dr. Samuel Graff, to explain the mysterious milk factor in the transmission of mouse cancer; the cultivation by Professor Stout and Dr. Margaret R. Murray of tumor tissue and the growth for the first time of human striated muscle in vitro. During the past five years, fifty-one papers have been published from the Laboratory.

In addition to the activities in Surgical Pathology in this laboratory, there are housed on this floor Professor Frank L. Meleney's laboratory of Surgical Bacteriology and Professor Louis Bauman's laboratory for the Biological Chemistry of the Department of Surgery. Here investigative work, as well as routine examinations, are carried out and have been invaluable to the Department.

As an intern on the Surgical Service in the old Hospital, Professor Meleney became interested in the bacteriology of surgical infections. After serving in the Pekin Union Memorial Hospital, he returned with an unusual experience and purpose in this field. Since then, he has developed the largest and most productive Laboratory of Surgical Bacteriology in this country. Through some ninety-seven papers from this Laboratory, he has contributed more than

anyone else to this important branch of surgery. His monograph on the bacteriology of surgical infections is now in press and will be published this year.

One of the most constructive functions of the Laboratory is the coöperation of the Staff in studying the patients with the surgeons, both in preoperative and follow-up period. In this way, the experience of diagnosis and prognosis is shared and the same language is spoken. Furthermore, all the Surgical Pathologists have had surgical training.

A measure of the healthy growth and alert attitude of a surgical staff is its appreciation of better techniques and of new sound therapy. In 1926 the use of silk in the repair of clean wounds was first used. This technique is now used to the great improvement of the immediate and late results. In the Department's last annual review of wound healing 97.8 per cent of the clean wound, closed with silk or cotton, healed by primary union. Two years ago as a result of studies made by the Committee on Convalescent Care of the National Research Council, we began to get patients out of bed within forty-eight hours after major operations instead of the former fourteen day period. This "early ambulation," which is carried out unless there are certain contraindications, has markedly reduced postoperative complications, has improved the morale of the patients, and has very materially shortened the bed and hospital stay, as well as the expense to the patient. The only complication this has caused is the increased number of admissions, which has made the operative schedule more difficult than ever before. During the past year more operations—more difficult and prolonged because of the lesions dealt with—were performed than any year in the history of the Hospital. The total number in the operating rooms on the eighteenth floor for 1945 was 6,041.

We are justly proud of the fine record of our staff in the war effort, both in military service and in civilian research in connection with the Surgical Committee of the National Research Council. It is a great blessing to have members of the staff back from military service.

I cannot close this review without expressing my deep appreciation of the constant help and coöperation of my colleagues in the Medical School and in the Hospital in the conduct of the Surgical Department. It has been a rare privilege to work with such a Faculty and under such able Deans as Dr. Darrach and Dr. Rappleye. I feel contrite for the mistakes that have been made and for the things left undone. But I shall always be grateful for my part in the work of the Department for the past twenty-five years, for my close friends and associates on the Surgical Service, and above all for the privilege of helping to train a younger generation of residents in Surgery who will carry on the sound surgery of the Department.

One of my most durable satisfactions is the fact that one of our former



residents and my close friend and associate, Dr. George H. Humphreys, II, has been chosen by the Faculty to succeed me in the Chair of Surgery. I am confident that he will keep the good traditions of the Surgical Department, eliminate the previous faults, and add new laurels to the Faculty of the Medical School.

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

During the year Professor John N. Robinson, and Drs. Charles T. Hazzard and Leonard A. Hallock have returned to active service in the Department after discharge from the armed forces of the United States.

The teaching of the undergraduates has been revised for a return to peacetime standards with a normal teaching faculty. The graduate teaching program has been commenced with the return of the resident staff to three year appointments; and the program is substantially the same as previous to the war period, with acceptance of residents who may qualify as candidates for a higher degree.

In conjunction with Professor Earl T. Engle of the Department of Anatomy, and Professor William E. Studdiford, Jr. of the Department of Obstetrics and Gynecology, Professor Robinson is co-establishing a study on human fertility. This investigation is made possible in part by a grant from the Mary and Albert Lasker Foundation.

Dr. Manek H. Masina is engaged in a study of the determinability of the heterologous growth of prostatic tumors as well as such growth of all urinary tumors. This is being supported by a special grant from the Charles Mayer Fund. Dr. William Ivers has been assigned to aid Dr. Thomas Hunter of the Department of Medicine in a study of the therapy of antibiotics in urinary infections. Dr. Hester Gibson has been assigned to the study of urinary infections in diabetes with Dr. Henry Marks of the Department of Medicine.

Members of the staff have continued several investigative problems in which they have been interested for several years. Professor George W. Fish has carried out for Professor Virginia K. Franz of the Department of Surgery, the determination of the value of acetate gauze in urology. The studies in the surgery of adrenal dyscrasias, hypertension related to urinary pathology, correction of urinary malformations in childhood, uremia and its therapy with study of electrolytes, have continued as heretofore. Pathological study of urinary tumors has continued under Dr. Meyer M. Melicow with classification of urinary and testicular tumors based upon his experience with the abundant material in the Department since its inception.

## MEDICAL LIBRARY\*

SEYMOUR ROBB, Medical Librarian

During the past year much time and effort have been spent in planning a new building, a number of highly profitable exchanges have been received, and an even closer relationship with investigators, faculty and students has been achieved. Some of the functions to which we have paid particular attention are in direct anticipation of the additional facilities that will be available when the new building becomes an accomplished fact. To this end efforts have been made to expand our "Archives," the nucleus of an audio-visual department which will eventually include films, film-strips, slides and recordings has been established; and the expansion of our bibliographic service by nearly 200% over last year has already been accomplished but is, even so, only an indication of what can be done with this service when adequate staff and space become available.

There was a tremendous increase in the normal functions of the Medical Library during the past year ranging from 35% in some cases to nearly 200% in others.

The past year has seen an unprecedented growth in the collections of the Medical Library. Since the end of the war much foreign material, both books and journals, has become available. In addition to the generous gifts of books and journals during the past year, the establishment of two new funds must be acknowledged. The Benjamin Salzer Gift made available the sum of \$200 to aid in the development of the "Archives" and Dr. Arthur H. Merritt gave \$100 to start a fund for the purchase of rare dental literature. Both of these funds have already been put to excellent use, the Benjamin Salzer Gift for the purchase of microfilms and photostats of original P & S material now in other libraries, and Dr. Merritt's for the purchase of several dental works that were beyond the scope of our ordinary budget.

In keeping with the growth of our collection during the past year, the demands on the library by students, faculty, and investigators have increased proportionately. In spite of a limited staff and the severe handicap of congestion of material, the greatest number of readers ever recorded in a given year were served. A total of 106,781 readers were in attendance (an increase of 37.2% over last year). The total circulation, amounting to 137,289 volumes, represents an increase of 35.9% over last year.

The Bibliographic Service was inaugurated in 1939-1940 when it was already obvious that the United States would be involved in World War II. In 1940-1941 when foreign journals were still available and when paper

\* For complete report see the Report of the Director of Libraries, Columbia University.

shortages had not yet appeared, the Bibliographic Service sent out only 8,500 citation slips. In comparison to this figure it has distributed 11,000 slips in 1945-1946 (an increase of 29.5%). Due to the lack of help, the number of subjects treated have been restricted to approximately one hundred. We have, however, made every attempt to put the service at the disposal of men returning from the armed services and their response has overwhelmingly justified its existence.

Increased use of the Library has made it necessary to reorganize the entire library staff and has emphasized the need for additional help. This new arrangement has worked exceedingly well in so far as providing instant and trained assistance to our patrons goes.

Almost one thousand new students and members of the Faculty were given talks on the use of the library and a guided tour of the library itself. This has been done previously but never before to so many different types of students—occupational therapists, dental hygienists, physical therapists, public health students, as well as medical, dental, and nursing students. In addition the Librarian talked to the first year medical and dental class on the literature of anatomy, the Reference Librarian talked to the second year nursing students on the history of medicine, and the Assistant in Charge of Periodicals spoke on periodical indexes to two different groups. All of these talks were illustrated by material from the library collections.

In March, 1946, the Medical Library acted as host to a joint meeting of the Hospital and Nursing group and the Patients Library group of the Special Libraries Association. The Medical Librarian gave an illustrated talk on the Library of Congress and its activities. The Librarian also spoke before the joint meeting of the Biological Sciences Group and Hospital and Nursing Group at the Special Libraries convention in Boston, June 13-15, 1946. During the year the Librarian was appointed to the College and University Libraries Committee of the New York Library Association and accepted the Chairmanship of the Committee on Duplicate Foreign Material of the War Years of the Medical Library Association.

A total of 12,184 separate issues of journals were added to our records during the year for an average of over a thousand per month. Since the end of the war many titles have resumed publication and many new important journals in the specialties have begun. We have added fifty-three new periodicals to our regular collection which now gives us 1,279 titles currently received through subscription, gift, and exchange. While no statistics have been kept on the increased use of current journals, a conservative estimate is that the use of this material has at least trebled during the last twelve months. Interlibrary loan requests have approximately doubled during the past year. These increased demands from other libraries have made it necessary under

certain conditions to supply the information requested through the use of microfilm or photostats in order that our regular patrons should not be deprived of the material even temporarily.

Although it is impossible to enumerate here the 33,685 volumes, pamphlets, and journals received as gifts during the past year, several items of outstanding interest should be mentioned.

The manuscript lecture notebooks of Sir James Young Simpson (1811-1870) were given to us by Dr. Benjamin P. Watson, Professor of Obstetrics and Gynecology. It was Simpson who discovered that chloroform was a less irritating anesthetic than ether and who was the first user of anesthesia in midwifery. Simpson also introduced the iron wire suture and the use of long obstetrics forceps. He was the first to erect pavilion or cottage hospitals and he was an early user of statistical methods in medical investigations.

Through the interest of Professor Frederick A. Mettler we have received many outstanding and valuable works from the Benjamin Salzer Gift. Several of the most interesting of these are as follows:

An Incunabulum of Dinus de Garbo. This is a 1499 edition of Avicenna's Canon with notes and explanations by Dinus. This copy was printed in Venice by Johann Hamann and is an excellent example of the fine type and printing for which the early Italian printers are so justly famous.

Two editions (1755 and 1757) of the English translation of Heister's Surgery, one of the great landmarks in the history of surgery.

The first American edition of Sir Charles Bell's *System of Dissections* in the rare Baltimore (Jefferis, 1814) printing.

A 1560 copy of Alexander of Tralles work. Alexander of Tralles is the only Byzantine writer of the sixth century, whose works we have, who shows any sign of originality. He is said to be the first to mention rhubarb and to prescribe colchicum for gout.

A 1619 copy of the *Regimen Sanitatis Salernitanum*, the well known rhymed rule for healthful living.

An early edition (Philadelphia, 1817) of John Redman Coxe's Medical Dictionary—the first American medical dictionary to be printed.

## NEW YORK POST-GRADUATE MEDICAL SCHOOL

WILLARD C. RAPPLEYE, Director

During the school year ending June 30, 1946, there have been 1,220 physicians enrolled in the New York Post-Graduate Medical School from 44 states, 3 territories and 19 foreign countries. Of this number 551 were veterans and 353 were former matriculates. This number has been exceeded only once in

the history of the School, in 1919-1920 when 1,399 physicians attended. The very large number enrolled this year is the more remarkable because most of the classes at the Post-Graduate are now limited in size and a great many applicants were turned away because the classes were filled.

Listed below are statistics regarding the gross number of registrations by departments:

Dermatology and Syphilology . . . . .	172
Gynecology . . . . .	172
Medicine . . . . .	885
Neurology and Psychiatry . . . . .	26
Ophthalmology . . . . .	152
Orthopedic Surgery . . . . .	34
Otolaryngology . . . . .	26
Pathology . . . . .	27
Pediatrics . . . . .	163
Surgery . . . . .	124
Traumatic Surgery . . . . .	15
Urology . . . . .	8
Interdepartmental . . . . .	92
<hr/>	
TOTAL . . . . .	1,896

The Registrar reports that there are more advanced registrations for the courses for the fall and winter months than usual and more even than a year ago. A number of classes to be held in the fall are already filled.

The great demand for the long course of training for specialization in dermatology and syphilology continued. The class has already been selected consisting of twenty-two physicians who will begin this course on October 1, 1947. No further applications will be considered during the coming year because it seems too early to choose the class for 1948. There were more than one hundred applicants up to June 1 for the class opening in October, 1947.

A full report of the research and teaching activities and of staff changes is contained in the published report of the School and Hospital.

## SCHOOL OF TROPICAL MEDICINE\*

Professor PABLO MORALES OTERO, Director

Now that normal times are gradually approaching, the School is anxious to return as quickly as possible to its peace-time program, laying special emphasis

\* For complete report see the Report of the Director of the School of Tropical Medicine.

on problems of public health as related to the American tropics and, specifically, to the Caribbean area. Such a program envisages the training of personnel for public health work in these regions as well as fundamental research in the fields of nutrition and tropical medicine.

During the past year, the Special Board created the Master of Science Degree to be granted to those who complete at least two years of graduate work in one of the basic sciences, covering one hundred and thirty credits, with a thesis in their specific fields. Requirement for admission is a Baccalaureate degree from an accredited college with a grade index of not less than 1.5.

Activity on the new building, which is to house the Department of Hygiene, has progressed to the point where bids for its construction have been let by the Department of the Interior.

The sessions of the Fifth Annual Meeting of the Puerto Rico Public Health Association were held on February 6,7,8, and 9, 1946. Among the guests from the United States were the late Dr. M. J. Rosenau, Dean of the School of Public Health of the University of North Carolina; Dr. Aristides Moll, Executive Secretary of the Pan American Sanitary Bureau; Major James A. Caldwell and Major W. Myers Smith, Chiefs of Party, respectively, of the American Sanitary Missions in Santo Domingo and Haiti, and Mr. John Hepler, Chief of the Bureau of Engineering, Michigan State Department of Health, and Secretary of the Engineering Section of the American Public Health Association.

Visitors during the year included: Professor A. H. Thaysen, Director of the Microbiological Institute, Trinidad, B.W.I. Dr. Victor Johnson, of the American Medical Association, Chicago; Dr. M. Ruiz Furniz, of the University of Murcia, Spain; Surgeon-Lieutenants P. M. Jameson and Kenneth Davidson, R.C.N.V.R., Ottawa, Canada; Dr. E. J. Teeter, of the Lilly Research Laboratory, Indianapolis, Indiana; Drs. J. B. Rice and T. G. Klumpp, of the Winthrop Chemical Company; Sir Rupert Briercliffe, Director for Development and Welfare of the British West Indies and Dr. W. H. Kauntz, Chief Medical Adviser in the Colonial Office, London; Dr. Willis G. Hewatt, Texas Christian University, Fort Worth, Texas; Mr. C. L. Simering, of the State Department; Drs. William S. Boyd and David S. Ruhe, U.S. Public Health Service, Atlanta, Georgia; Professor Francisco J. Cambournac, of the Institute of Tropical Medicine at Lisbon; Major Albert J. Sheldon, of the Army Medical School, Washington, D. C.; Drs. John R. Heller and John J. Bloomfield, of the U. S. Pubic Health Service, Washington, D. C.; Dr. C. Muraine, Guadeloupe, Martinique, F.W.I., Dr. E. R. Kellersberger, of the American Mission to Lepers; Mr. Frank H. Bowles, of Columbia University;

Dr. Hazel M. Houck, Cornell University; Miss Edna R. Voss, Dr. Hugh I. Evans, Dr. E. A. Odell, Dr. Charles Remy, and Dr. H. N. Morse, all of the Presbyterian Board of National Missions, New York City; Dr. Thomas D. Slagle, of Chapel Hill, North Carolina.

A steady turnover and continuous shifting of personnel in all departments of the School and Hospital testified to the unsettled times in which the world is moving. Many of the members of the staff left for other posts or to continue studies elsewhere; others, however, returned from studies or service in the Armed Forces.

In February of this year, and after release from the service, Dr. Dwight Santiago Stevenson took up his duties as Medical Director of the University Hospital. Dr. A. Díaz Atilas, Pediatrician of the Hospital, returned after three years in the U. S. Navy. Dr. Héctor F. Bladuell was appointed to succeed Dr. John M. Porterfield, of the U. S. Public Health Service, who organized the V. D. Clinics of the University Hospital. As of July 1, 1945, Mrs. Marina P. Colón succeeded Miss Ruth A. Mercer in the position of Directress of Nurses.

Professor F. Hernández Morales, of the Department of Clinical Medicine, left in January for Tulane University in New Orleans, where he had been invited to lecture on tropical medicine for a period of three months. Professor Ramón M. Suárez, head of this same department, was likewise invited to speak at two medical gatherings taking place during the spring months—before the Academy of Medicine of Richmond, Virginia, and the American College of Physicians in Philadelphia, Pennsylvania. Another member of the department, Dr. Una Robinson, attended the meetings of the American Institute of Nutrition, held at Atlantic City in March, where she read a paper before that Institute.

Professor Irving Fox became a member of the Department of Medical Zoölogy in October 1945, as Associate in Entomology.

Professor Guillermo Arbona, Head of the Department of Hygiene, returned from the States in December, where he went to transact the purchase of surplus supplies from the U. S. Public Health Service. Mrs. Edna S. McKinnon, Assistant Professor of Public Health Nursing, resigned during the middle of this academic term to take up another post with the Institute of Inter-American Affairs. Miss Celia Guzmán has been in charge of all public health nursing activities of the department since then. Mr. Orlando Bonilla had a year's leave of absence which he spent at the University of Michigan, studying towards the M.S. in Bacteriology. Mr. Rafael Pirazzi was sent to the United States to learn laboratory procedures at the U. S. Public Health Service Laboratories, in Cincinnati. At the present time, two other members

of the department, the Misses Sylvia E. López and Matilde I. García, are observing record work in various institutions of the continent, in preparation for their duties as statistical clerks in the Department of Hygiene.

During the period under review, the Department of Pathology received the resignation of Dr. Guillermo M. Carrera, who is now on the faculty of Tulane University, and of Dr. Sophie C. Trent, who has accepted a fellowship of the National Institute of Health. To fill these vacancies, Professor I. Rivera Lugo was appointed Pathologist in the Department and Dr. Donald F. Babb, recently of the Medical Corps, U.S.A., Associate in Pathology.

Miss Carmen Pura Jiménez returned from Syracuse University which she attended for postgraduate studies in Library Science.

The Director visited the United States late in November, 1945, at the invitation of the Food and Nutrition Board of the National Research Council, at which time he spoke on the nutritional problem of Puerto Rico. In March of this year, he attended the sessions of the Anglo-American Caribbean Commission, held in St. Thomas, V.I., as adviser on problems of medicine and public health of the Puerto Rican delegation. As Chairman of the Caribbean Research Council, he took part in the discussion relative to the organization of a Caribbean Association of Public Health and Tropical Medicine. It is hoped that a meeting for this purpose can be held in Puerto Rico at an early date.

Since September last, there is being offered every Tuesday at noon a special program of educational films for the non-professional employees both of the School and Hospital. An average of seventy-five persons are taking advantage of this privilege during their luncheon recess, made possible through the coöperation of the Department of Education, the Agricultural Extension Service, and the Armed Forces. Plans have recently been drawn up for a program of health education for hospital employees, wherein the students enrolled in the Department of Hygiene—especially those taking the courses in Sanitary Science—will conduct the teaching as part of their field experience.

Respectfully submitted,

WILLARD C. RAPPLEYE, M. D.

*Dean*

*June 30, 1946*



# Columbia University

IN THE CITY OF NEW YORK

## Report of the Dean of the Faculty of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1947



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# FACULTY OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1947

*To the Acting President of the University*

SIR:

I have the honor to submit the annual report of the activities under the Faculty of Medicine for the academic year 1946-1947.

The registration of the School of Medicine was as follows:

First year . . . . .	111
Second year . . . . .	111
Third year . . . . .	106
Fourth year . . . . .	114
Total . . . . .	<u>442</u>

The degree of Doctor of Medicine was awarded to 113 candidates on June 3, 1947.

There were approximately 1,559 applicants for admission to the class beginning September, 1946. These applicants had prepared in 281 different colleges and universities. The class admitted in September prepared in forty-seven colleges. The graduating class of June 3, 1947, obtained internships in forty-five different hospitals in all sections of the country.

In the School of Public Health the registration was as follows:

D.P.H. candidates . . . . .	1
M.P.H. candidates . . . . .	44
M.S. candidates . . . . .	54
Total . . . . .	<u>99</u>

The registration in the School of Nursing was as follows:

First year . . . . .	105
Second year . . . . .	101
Third year . . . . .	102
Total . . . . .	<u>308</u>

In the course for Occupational Therapists fifty-eight students were registered, and forty students were registered in the course for Physical Therapists.

The Dental School registration was as follows:

First year . . . . .	33
Second year . . . . .	21
Third year . . . . .	42
Fourth year . . . . .	39
Total . . . . .	<hr/> 135

There were seventy-five special students registered in the Dental School.

In addition to the degree of Doctor of Medicine the following degrees were awarded during the year:

Med.Sc.D. . . . .	3
D.D.S. . . . .	38
M.P.H. . . . .	41
M.S. (Hospital Administration) . . . . .	2
M.S. (Biostatistics) . . . . .	1
M.S. (Nursing) . . . . .	78
B.S. (Physical Therapy) . . . . .	3
B.S. (Occupational Therapy) . . . . .	6

In addition to the students enrolled under the Faculty of Medicine there were forty-five students registered under the Graduate Faculties of the University who took courses and advanced research work in the departments of the Medical School.

Fifty-three visiting scholars from twenty-four foreign countries visited the School during the year for periods up to a full year of study. The number of short-time visitors for special clinics, rounds, or staff exercises totaled several hundred.

Dr. Hugh Chaplin, Jr., Class of June, 1947, was given the Janeway Prize, awarded to the graduate who, in the opinion of the Faculty, has ranked highest in efficiency and ability. He was also given the Thomas F. Cock Prize which is given to the student who submits the best thesis on puerperal fever. The Dr. William Perry Watson Prize, given to the member of the graduating class showing the most efficient work in the study of diseases of infants and children during the medical course, was awarded to Dr. Harris E. Karowe, Class of June, 1947. The Harold Lee Meierhof Memorial Prize, given to the student who, in the opinion of the Professor of Pathology, has done the best work in the field for the current

year, was awarded to Mr. Donald W. Johnson, class of June, 1948. The Borden Undergraduate Research Award, for the member of the graduating class who has done outstanding research work during his medical course, was awarded to Dr. Chester M. Southam, Class of June, 1947.

Sixty-four students received scholarships in the total amount of \$23,320, or an average of \$364.37 per student.

It is with deep regret that the following deaths are reported:

Helen P. Wood, Instructor in Nursing, on August 9, 1946

Ward J. MacNeal, Professor of Bacteriology and Executive Officer of the Department of Bacteriology, New York Post-Graduate Medical School, on August 15, 1946

Clement B. Masson, Assistant Professor of Clinical Neurological Surgery, Attending Neurological Surgeon, and Acting Director of the Neurological Surgery Service, Presbyterian Hospital and Vanderbilt Clinic, on September 5, 1946

Robert K. Lambert, Clinical Professor of Ophthalmology, on October 3, 1946

James O. Macdonald, Associate Clinical Professor of Otolaryngology, New York Post-Graduate Medical School, on January 13, 1947

Charlotte H. Adams, Recording Secretary of the College of Physicians and Surgeons (retired), on January 14, 1947

Thomas H. Russell, Professor of Surgery and Executive Officer of the Department of Surgery, New York Post-Graduate Medical School, and Director of the Surgical Service, New York Post-Graduate Dispensary and Hospital, on April 5, 1947

Milo Hellman, Professor of Dentistry, on May 11, 1947

Clay Ray Murray, Professor of Orthopedic Surgery and Attending Surgeon, Presbyterian Hospital and Vanderbilt Clinic, on June 14, 1947

John L. Kantor, Associate Clinical professor of Medicine, on June 26, 1947

The following have been appointed to professorships within the academic year:

Frank B. Berry, Professor of Clinical Surgery

E. Gurney Clark, Professor of Epidemiology

Harold W. Jacox, Professor of Radiology

James L. Joughin, Clinical Professor of Neurology

John S. Lockwood, Professor of Surgery

Marjorie Peto, Assistant Professor of Nursing

Albin R. Seidel, Assistant Professor of Dentistry

David J. Stump, Assistant Professor of Pathology

Howard C. Taylor, Jr., Professor of Obstetrics and Gynecology  
James L. Troupin, Assistant Professor of Public Health Practice  
John B. Truslow, Assistant Dean (Graduate Studies) of the Faculty of  
Medicine  
Harry M. Zimmerman, Associate Clinical Professor of Pathology

The following emeritus designations were made by the Trustees:

*From October 1, 1946*

Allen O. Whipple, Valentine Mott Professor Emeritus of Surgery  
Hugh Auchincloss, Professor Emeritus of Clinical Surgery

*From May 1, 1947*

George Miller MacKee, Professor Emeritus of Clinical Dermatology and  
Syphilology, New York Post-Graduate Medical School

*From July 1, 1947*

J. Gardner Hopkins, Professor Emeritus of Dermatology  
Albert R. Lamb, Professor Emeritus of Clinical Medicine  
John D. Kernan, Professor Emeritus of Otolaryngology  
S. Philip Goodhart, Professor Emeritus of Clinical Neurology  
Adrian V. S. Lambert, Clinical Professor Emeritus of Surgery  
Walton Martin, Clinical Professor Emeritus of Surgery

Dr. Albert R. Lamb, Jr., has completed his first year as the Physician-in-Charge of the Student Health Service with highly commendatory comments from the students, staff, and hospital and school administration. Medical care is provided for the medical and dental student body, including graduate students in both schools and public health graduate students, a total of 850 individuals. Complete physical examinations are performed on all first- and third-year medical and dental students; routine chest x-ray examinations on all first-, third-, and fourth-year medical students, and first- and fourth-year dental students.

#### THE GRADUATE AND POSTGRADUATE PROGRAMS

The program of instruction in the basic medical sciences offered at Columbia University is designed primarily as an integral part of the residency training program in those hospitals affiliated with Columbia Uni-

versity. It has been greatly strengthened during the year through the generous financial support from the W. K. Kellogg Foundation.

In fifteen specialties there are approximately 370 approved residencies in these affiliated institutions including St. Luke's Hospital, First Medical Service of Bellevue, Mount Sinai, Montefiore, and Roosevelt Hospitals, and the orthopedic residents of the Hospital for Special Surgery and the Hospital for Joint Diseases. During the academic year 1946-1947, 204 of these residents registered with Columbia University for more than 500 individual courses.

The reputation of the courses has resulted in many requests from other hospitals and medical centers for registration of their residents to share in the program. It has been felt not only that there is value from an educational point of view in limiting the size of our classes, but there has also been a necessary limit to the time which our staff can devote to the program. As it is, we find that the 204 residents who registered last year represent an interesting cross section of medical education in the United States: a third were educated in New York City, a little less than a third in schools in northeastern United States outside of New York City, and slightly less than a third from all other medical schools in the country. Twenty-five residents came from abroad from schools of known excellence in undergraduate training.

Looking ahead, we find every reason to believe this enriched program of residency training comprising an emphasis upon basic science instruction will find a permanent place in medical education. Some of the subjects, such as pathology and its various sub-specialties and bacteriology, appear adaptable to programs within the affiliated hospital, but it seems rather remote to anticipate the development, apart from a university center, of training opportunities in anatomy, physiology, biochemistry, and pharmacology, as examples, suitable for residency training.

We regret to report the termination, as of April 30, 1947, of the affiliation between the University and the New York Post-Graduate Medical School and Hospital, which began in 1931.

The postgraduate program of training for general practitioners and specialists offered under the supervision of the Faculty of Medicine of Columbia University again attracted a number of students from near and

far. There were 1,431 physicians registered for short courses in various fields which were offered at the Medical Center, Mount Sinai Hospital, Montefiore Hospital, Margaret Hague Maternity Hospital, Roosevelt Hospital, and Bellevue Hospital from June 30, 1946, to July 1, 1947. In addition there were 993 physicians enrolled for training at the New York Post-Graduate Hospital and Medical School from July, 1946, until April 30, 1947.

A grand total of 2,424 physicians were matriculated in short courses, 55 percent were veterans and between 4 percent and 5 percent were students from foreign countries. The following table shows the registration by hospitals:

<i>Hospital or Center</i>	<i>Veterans</i>	<i>Non-Veterans</i>	<i>Total</i>
Bellevue . . . . .	0	1	1
Margaret Hague . . . . .	43	19	62
Montefiore . . . . .	297	146	443
College of Physicians and Surgeons . . . . .	93	217	310
Mount Sinai . . . . .	362	253	615
New York Post-Graduate . . . . .	547	446	993
	<hr/>	<hr/>	<hr/>
Total . . . . .	1,342	1,082	2,424

An important change was instituted in the administration through the addition of an office of the University Bursar and Registrar in close association with the Dean's office. This has made possible a single contact relationship between the affiliated hospitals and Columbia University with respect to the postgraduate program.

#### THE FUTURE OF THE MEDICAL CENTER

During the year the staff has collaborated on a study of the functions and future needs of the Medical Center in light of the many and expanding opportunities in medical education and research.

The Columbia-Presbyterian Medical Center represents an effort to integrate geographically and functionally the highest type of medical education, research, and public service. The University is primarily responsible for the educational and research programs. It supports and



encourages the ideals and standards of high scholarship and scientific integrity. To accomplish these purposes, the University brings together the medical student, the teacher, the investigator, and the medical practitioner and through such association it coördinates scientific teaching with fruitful research and effective medical practice.

The effort has been to create an environment at the Medical Center in which medicine of the highest scientific standards can be provided. The emphasis is upon men and not upon bricks and mortar, although it is clearly recognized that the work of the scientists and physicians depends in no small measure upon the facilities, equipment, and laboratories needed for productive work. The ideal of the Medical Center is to give further impetus to the development of medical knowledge which during the last fifty years has been more noteworthy than in the previous four thousand. Medicine today is on the threshold of unprecedented developments, not unlike those which have recently resulted in the field of nuclear energy.

To be successful the Medical Center must anticipate the professional needs of the next generation, which requires a high order of imagination, sound leadership, and courage in the formulation of educational and hospital plans. The Medical Center must be much more than the sum total of its individual units. It represents the synthesis of the highest type of medical education, research, and the care of the sick as it explores the frontiers of knowledge in an effort to solve the mysteries of diseases and to provide sound methods for the diagnosis, treatment, and prevention of mental and physical illness and the development of a healthy population. The success of its program will depend primarily upon the ideas and the ideals which it represents and upon the men and the facilities that can be provided for them to attain these objectives of public service, education, and research.

It is clear to all who are familiar with the problem that medical education today is a continuous process beginning in the period of general education preceding admission to medical school and passing successively through undergraduate medical training, including the internship; graduate preparation for either general medicine or a specialty through the

hospital residency; and the continuation of the education of the physician in practice in order that he may be kept abreast of the most recent developments in medical knowledge and methods.

#### RESPONSIBILITIES OF MODERN MEDICINE

Medicine is in a stage of rapid transition. National changes in economic and social philosophy have a definite bearing on the forms and responsibilities of medicine. It is, therefore, important to prepare the profession and the student for those changes. Medicine must be alert and responsive to the public concern regarding the health and welfare of the entire population. It is now generally agreed that the health and vigor of its people is the greatest asset of any nation in time of peace or war. The American public is aroused and is demanding better medical and health service for every element of the population, regardless of economic status or geographic location. The country is convinced of the value of adequate medical care as a part of the national economy. It is also becoming increasingly clear that medical practice is not only a private pursuit but a community responsibility.

The profession itself is developing medical service plans which will partially meet the health and medical needs of the population. Those plans that are making the most active progress now are on a voluntary basis and represent the combined efforts of the medical profession, hospitals, the public, and industry. Some of these are built on the experience of the last sixty years in both compulsory national health insurance and a wide variety of voluntary plans. All are in response to the effort to provide some form of collective protection in sickness as a part of the search for security by the wage earner against the risks to which employed persons are liable. Most of the plans are based of necessity on the unpredictable nature of illness and the consequent incapacity, loss of earning power, or dependency. The logical solution appears to be some form of prepayment insurance which would distribute the risks over a large number of the population and over a long period of time.

The best of these programs emphasize particularly comprehensive medical care in order to insure the maximum of preventive medicine, early diagnosis, and proper therapy at a time when treatment offers the

highest prospect of success. Modern medical knowledge is so complex that no individual can possibly master the whole field. The sub-division of labor in the field of medical care is now widely recognized and, within reasonable limits, desirable.

The application of modern medical knowledge and skill can best be brought about through group practice, the advantages of which will accrue not only to the patient and his family but equally to the physicians, nurses, dentists, and other who may work in such a coöperative plan. It is also important that comprehensive medical care on a group practice basis be extended to the whole family, and that financial support be derived from prepayment insurance, allowing a free choice on the part of the patient and his family of the group and of the individual physician within the group. These programs can provide adequate medical care at a reasonable cost and render complete and satisfactory medical services for a large fraction of the employed population in a given area. Emphasis in these undertakings should be placed upon local administration, management, and financial support, supplemented in certain areas where needed by grants-in-aid, hospital insurance programs, and other devices which would insure the proper distribution of adequate facilities and personnel for modern medical care of the entire population. These considerations have a bearing upon the immediate programs of the Medical Center itself because it is in this environment that effort is being made to educate the physician of the future for leadership in the development of local plans for satisfactory medical care.

In view of these and other fundamental changes in medical practice, it is highly important that the training of the medical student to practice medicine must be permeated with an understanding of the larger social and economic problems with which the profession must deal and which are likely to influence the forms and opportunities of practice in the future.

It is well-known that present-day knowledge regarding the prevention, diagnosis, and treatment of disease is far in advance of its application in community medical services and medical practice. The present wide gap or lag can only be narrowed through a more satisfactory organization of medical services and practice largely on the part of the profession itself.

Furthermore, medicine must fully take the public into its confidence in regard to the value as well as the difficulties of making modern medical services available to the entire population. Financial and administrative problems are involved, not only because of the increase in cost of supplies, salaries, and other factors of current inflation, but equally because of the very great increase in the amount and character of what is now regarded as adequate medical care. The profession has a large responsibility to the public in informing the community, industry, and legislative bodies on the values, as well as the limitations, of certain forms of medical care and the important matter of the total cost of adequate professional services.

It is obvious that medicine today is as much a social as it is a biological science and must increasingly organize itself to participate in community efforts in the development of sound health and medical services, through hospitals, out-patient departments, health insurance plans, group practice, health centers, laboratories, rehabilitation programs, home nursing care, dentistry, social service, legal medicine, workmen's compensation, nutrition, optometry, and other aspects of medical and health care. It is the function of the Medical Center to contribute within its resources and facilities as fully as possible to the solution of all these problems. Yet its primary responsibility is for the training of men and women to go into the communities of the country, properly prepared in point of view as well as in technical skill to provide modern medical care. It is the quality of medical education and medical research that ultimately determines the standards of medical care. In the final analysis the medical schools are the guardians of the health of the nation.

#### TRENDS IN MEDICAL EDUCATION AND RESEARCH

Without discarding the sound educational methods of the past or disregarding the accumulated experiences in medical training of many generations, undergraduate medical teaching is undergoing significant changes. Particular effort is being made to integrate more completely the various phases of the medical course into a functional whole. This effort leads increasingly to a disregard for the conventional pattern of departmental organization, which for administrative purposes can be

retained without handicapping the development of a better functional integration of medical training.

Changes in the instructional program are partly in recognition of the fact that the crucial element in medical education is the individual student, upon whose character, aptitude, preparation, ability, and industry the results of medical training so largely depend. The aim is to develop minds capable of appraising evidence and drawing conclusions on logical reasoning. It is impossible to give the student in the four years of the medical course all the facts and methods in every field of medicine.

It has been inevitable that the rapid expansion and sub-division of clinical medicine should be accompanied by emphasis upon teaching in the specialities and in the technical aspects of these subjects. The hope of presenting the entire subject of medicine satisfactorily in the medical course has been abandoned as an impossible endeavor. Furthermore, many aspects of the subject cannot be taught by the faculty—they must be learned by the student through actual experience under supervision.

In relation to all of these questions of medical education, there is the very important over-all problem of the supply of physicians in relation to the needs of the country and the recruitment of qualified students. In regard to the former, there is a division of opinion. Some urge that there should be an increase in the output of the medical schools of about fifty percent over the present number of graduates. The fact is that the number of doctors in the United States in relation to the population is more than twice as great as existed in any country in the world previous to World War II and an even larger ratio than in some of the countries whose health and medical achievements have been outstanding. The present ratio of physicians in the United States is in excess of that generally accepted as needed for an adequate standard of medical care.

The real difficulty in this country is the poor distribution of the physicians who are largely concentrated in the more densely populated and more prosperous areas of the country and where there are modern hospital, laboratory, nursing, and other facilities required by modern medical practice. The evidence is clear that the problem is not one of producing more physicians but of securing a more satisfactory distribution in relation to the population and the medical needs of the nation and an im-

provement in the standards of medical practice. Merely to produce more physicians who will concentrate in the cities will not solve the problems of making medical services available in the less densely populated areas or supply the public health services and the Army and Navy with medical officers. The present output of the medical schools predicted by competent actuaries of life insurance companies and government agencies indicates that the number of physicians per unit of population in the United States will increase indefinitely on the basis of existing and contemplated medical schools and their enrollments.

The other important aspect of medical education is the recruitment of the highest quality of medical students from the large numbers of applicants for admission to professional training, and the general content and preparation which should be provided in the colleges for these students. As brought out earlier in this discussion, the selection should be made from those who show the highest promise of becoming sound, ethical, well-trained and competent practitioners of medicine and leaders in the medical profession. Every effort should be made in the enrollment of students to admit those applicants who, in addition to evidence of intellectual capacity and achievement in their college preparation, have the character, ability, resourcefulness, intellectual self-reliance, and maturity to assume responsibility in matters of life and death.

Provisions should be made in the national interest that those students with superior qualifications should be granted the privilege of studying medicine, regardless of their economic status. Provision should be made that such students be financed in one way or another in order that they may be permitted to complete their education. This can be done through some form of scholarship aid or loans financed through foundations, institutions, or government grants.

#### MEDICAL RESEARCH

The responsibility of the University in the program of the Medical Center is equally great in regard to the development of research and the advancement of scientific knowledge, both in the clinical fields and in the medical sciences. Research is an essential catalyzing influence in the program of modern medical center. Just as in the field of education (where the lines of departmental organization have largely disappeared)

it is often not possible to identify a research activity as belonging to any single department. Increasingly, research efforts have become coöperative and have required highly specialized skills and knowledge in different areas of scientific endeavor. Many of the research activities are inter-departmental. In creating such coöperative activities, the arrangements have usually been based on personal arrangement between investigators.

It has been suggested and might well serve a useful purpose that some of these activities be grouped functionally into certain committees or institutes. Already there are in existence a number of joint investigative undertakings. Among those that may be listed or proposed are:

The Institute of Cancer Research (Surgery, Gynecology, Biochemistry, Pathology, Endocrinology, Medicine, Clinical Specialties, Immunology, Cancer Research, Pharmacology)

The Institute of Aging (Medicine, Physiology, Pathology, Biochemistry, Anatomy, Psychiatry, Neurology)

The Institute of Human Reproduction (Obstetrics, Gynecology, Physiology, Endocrinology, Psychiatry, Urology)

The Institute of Infectious Diseases (Medicine, Pediatrics, Public Health, Bacteriology, Immunology)

The Institute of Rehabilitation (Orthopedic Surgery, Medicine, Surgery, Anatomy, Physiology, Physical Medicine, Psychiatry, Neurology)

The Institute of Social Medicine (Medicine, Health Education, Dentistry, Medical Economics, Hospital Administration, Public Health Practice, Industrial Medicine, Rural Medicine, Nursing, Business Administration, Sociology, Clinical Departments)

The Institute of Cardiovascular Disorders (Medicine, Surgery, Pediatrics, Physiology, Pharmacology, Pathology, Neurology)

The Institute of Tropical Medicine (Medicine, Public Health, Parasitology, Bacteriology, Pathology, School of Tropical Medicine)

The Institute of Industrial Medicine (Public Health, Medicine, Surgery, Orthopedic Surgery, Ophthalmology, Otolaryngology, Bacteriology, Dentistry, Nutrition)

The Institute of Medical-Dental Disorders (Surgery, Oral Surgery, Dentistry, Plastic Surgery, Medicine, Cancer Research, Otolaryngology)

The Institute of Enzymology (Biochemistry, Bacteriology, Medicine, Physiology, Pathology, Cancer Research)

The Institute of Biophysics (Physiology, Biochemistry, Cancer Research, Radiological Physics, Electrophoresis, Medicine, Pediatrics, Physical Medicine)

The Institute of Chemotherapy (Pharmacology, Medicine, Biochemistry, Pediatrics, Surgery, Bacteriology)

The Institute of Growth (Embryology, Medicine, Cancer Research, Pediatrics, Physiology, Biochemistry, Nutrition, Dentistry)

The Institute of Nutrition (Pediatrics, Medicine, Physiology, Dentistry, Surgery, Cancer Research)

The above list of coöperative endeavors or possible grouping of activities indicates the extent to which research programs have broken down the traditional departmental organization of medical schools. Scientific activities of this character cannot be confined in water-tight compartments. The necessary correlation and coöperation between the different disciplines and individuals with specialized training and qualifications in different aspects of a common problem of research points to the necessity of integration of many of these activities through coöperative endeavor. These necessary steps in unifying research efforts are bound to reflect in modifications of actual student instruction, both at the undergraduate level and the graduate level. They emphasize again the comments made earlier that the entire medical course is a functional whole requiring in the clinical departments, as well as in the scientific divisions, the application of knowledge from a wide variety of underlying sciences, and the grouping of instruction by functional units or subjects.

#### FACILITIES AND RESOURCES REQUIRED FOR COMPLETION OF THE MEDICAL CENTER

As emphasized earlier, the important consideration in the development and the future of the Medical Center relates to personnel more than it does to physical facilities. It is not possible, however, to carry forward the program of the Medical Center without providing the necessary facilities and opportunities for the teaching of undergraduate and graduate students, the conduct and extension of research, and the care of the sick.

Several urgent and important considerations present themselves. The University and the Hospital jointly have adopted a liberal and flexible policy in regard to their identical staffs. It has been agreed that



there should be a small nucleus of strictly full-time men in the major clinical departments responsible for the general direction of the educational and research programs and the staffing of the hospital services. In addition to that small nucleus, it has been the policy to provide a substantial number of practicing physicians who are interested in teaching as well as private practice and for whom facilities at the Medical Center must be provided if such individuals are to make their maximum contribution.

In order to utilize most effectively this considerable group of men, it is necessary that a number of them concentrate their work at the Center. This has led to the gradual development of "geographic full-time" under which, as far as possible, private offices and facilities for private patients have been provided. This policy, evolved over a period of years, has led naturally to the granting of preference in office space for private practice and in the admission of private patients to those members of the staff who devote a considerable portion of their time to the University and Hospital activities.

#### ADDITIONAL FACILITIES FOR PRIVATE PATIENTS

There is agreement within the staff of both the School and the Hospital that there should be provided at the Medical Center a unit comprising private offices, diagnostic laboratory facilities, and private room accommodations for about two hundred additional beds in a separate unit so located and constructed as to allow for future expansion, if indicated. This facility probably should be built essentially as a group practice unit which may be adapted later for those of the insurable or insured group of the employed population. It is probable that in the near future a substantial proportion of the population will have some form of prepayment medical care insurance, including a large fraction of the patients admitted into the wards of the hospitals at the Medical Center. It would appear urgent that the first major consideration is that of facilities for the part-time teaching staff, particularly those who do, or in the future will, enjoy the privileges of geographic full-time.

The Hospital has been making strenuous efforts to meet the problems outlined by conversion of existing space into offices for private practice

and by plans for the conversion of the seventh floor of the Hospital into low-priced private rooms. The latter will accommodate only a small fraction of the number of rooms needed, however, and can be converted only at a considerable cost. The present private-patient demands are reflected in the overload on the Radiology Service, the operating rooms, the diagnostic laboratories, and all the ancillary services of the Hospital and the School.

It would appear logical and probably economical for the Hospital to construct a new private pavilion rather than spend large sums on alterations and rearrangements which can be only temporary. Several sites are available on the property of the Medical Center which would serve the purpose admirably and divorce somewhat the needs of private practice from the immediate responsibilities of teaching and research, lessen the congestion and overload on present cramped facilities, and still provide satisfactorily for private patients and the practices of the part-time staff so essential in the over-all program. The present Harkness Pavilion can be used effectively by those men of the staff who have major responsibilities in the teaching wards and clinics.

The whole situation in regard to adequate facilities for private patients and doctors on geographic full-time will be accentuated when the new City cancer hospital is opened in 1949, at which time the University will be responsible for staffing that institution, and when the New York Orthopaedic Dispensary and Hospital is moved to the Medical Center.

#### WARD SERVICES

In regard to teaching ward services, the most serious shortage is in Medicine. This Department carries the heaviest schedule of undergraduate teaching and about it revolve a good many of the ancillary instructional programs and research activities. When the Medical Center was built, it was planned that there would be 200 beds for the Medical Service. At present the number is about 114. There are important sub-divisions of teaching and research in internal medicine which cannot be provided at the Center at the present time.

A delay in the provisions for the Department of Medicine was necessitated largely because of the lack of funds. The heavy deficit for the main-

tenance of ward beds for teaching and research purposes is a matter of great concern and has deterred the Hospital in opening the seventh floor for medical wards as originally planned. The development of prepayment medical insurance plans of various kinds is likely to lend financial aid for the maintenance of a larger proportion of ward patients. The high potentialities of the teaching-research program of the Medical Center cannot be fully realized until adequate provisions are made for the development of the Medical Service in the Presbyterian Hospital.

At the present time the instructional program for 100 medical students has had to be adapted to the shortage of beds for internal medicine. This has been accomplished through the utilization of Bellevue Hospital and Goldwater Memorial Hospital and further use for short periods of patients at Seaview Hospital and other institutions for teaching in physical diagnosis. About one-fourth of the medical student body has been given its third-year medical clerkship during the summer preceding the regular third year. The fourth-year instruction of medical students has been worked out in a number of affiliated institutions, particularly at Bellevue, St. Luke's, Roosevelt, and the Mary Imogene Bassett Hospitals. These provisions have now been formalized through an extension of the fourth year to twelve months of clerkship for the entire class.

#### RESEARCH LABORATORIES

Research is the life blood of a teaching institution and provides an incentive for many of the staff in their professional careers. Laboratory and research activities are today as important a part of a medical center as are ward beds and clinics. A modern teaching center must provide ample opportunities for investigative work. Only such institutions can in the long run attract and hold the highest quality of medical teachers, clinicians, and investigators.

One of the most urgent needs of the Medical Center today is that of more laboratory facilities, not directly for undergraduate teaching but more particularly for the development of the staff and graduate students, the training of teachers and investigators badly needed in other medical schools, hospitals and public health institutions and for contributing to the advancement of medical knowledge, improvement of medical care,

and the exploration of newer methods of diagnosis, treatment, and prevention of disease.

#### CANCER RESEARCH LABORATORIES

One of the most important and rapidly developing fields of fundamental and clinical research is that of malignancy. This problem cuts across and involves in varying degrees basic knowledge and methods of investigation in practically every one of the medical sciences as well as most of the clinical departments. Adequate laboratory facilities for cancer research would make possible the grouping and expansion of scientific efforts of a number of activities. A request for the construction of such a group of laboratories has been made. There exists in the Faculty and in the various units at the Medical Center all the essential elements of an over-all, integrated attack upon the different aspects of malignancy under guidance of outstanding investigators in the major fields of study.

The City of New York is now constructing a City cancer hospital on property provided by the Medical Center. It will accommodate between 300 and 350 patients and will include, in addition to facilities for deep therapy, radium therapy, chemotherapy, and ancillary services, three floors of laboratories of pathology, biochemistry, and bacteriology for routine hospital services and modest facilities for research by members of the staff. The hospital was placed near the Medical School and designed with emphasis upon research in the clinical fields. Columbia University will have the exclusive right to nominate the professional staff.

The large and strong Faculty of Medicine and the substantial laboratories that already exist in the medical sciences insure a considerable number of scientists who are interested in and devote their efforts to studies that may be directly or indirectly concerned with cancer problems. Among these fields of endeavor are endocrinology, biochemistry, immuno-chemistry, aging, enzyme chemistry, isotope studies, pathology, surgery, oral surgery, virus studies in cancer, gynecology, medicine, immunology, radiological physics, radiotherapy, electrophoresis, embryology, pharmacology, urology, and dermatology.

Columbia University, through its Department of Physics, is active in

the development of the Brookhaven project, as well as building extensive facilities at Nevis for studies in nuclear energy and all of its related aspects. This will insure for the investigators at the Medical Center adequate and convenient consultations on a wide variety of fissionable materials which have significance in studies of growth and malignancy. A number of the men now on the staff at the Medical School are working with radioactive isotopes, both in biological and chemical research as well as in certain clinical fields.

It is the conviction of the Faculty Committee on Cancer Research and the Faculty itself that fundamental research in cancer holds the highest promise if closely correlated with the basic medical sciences, from which investigators will derive stimulation and the most recent knowledge of developments in those sciences, rather than carried on in a separate detached group in some isolated building. It is for these reasons that the Faculty of Medicine has decided to develop its cancer research program in close coöperation with the major divisions of the medical sciences and the clinical departments, in order to insure prompt and valuable cross-fertilization of the various fields that contribute to a better understanding of the cancer problems.

In order to carry out the over-all program outlined, it is necessary to construct new laboratories to be devoted entirely to cancer research but in close proximity to the existing medical sciences. This can be accomplished by building the cancer research laboratories alongside existing medical school laboratories on top of the present Vanderbilt Clinic, thus placing the cancer laboratories in direct contact with anatomy, bacteriology, biochemistry, pathology, pharmacology, and physiology, including activities in biophysics as well as the major clinical fields of surgery, medicine, and gynecology. The arrangement seems ideal with all the advantages of an individual, self-contained department devoted to a fundamental purpose and in immediate proximity to the other activities of the entire Medical Center. It will also prove economical for construction and maintenance since the unit proposed would be built on existing foundations. The upkeep and physical maintenance of the unit would be provided by the University. The research activities would be financed by grants-in-aid, gifts, and income from endowment.

## PEDIATRIC LABORATORIES

The plans outlined would give substantial relief in the total laboratory situation at the Medical Center but leaves still the important problem of laboratory facilities for pediatrics, now seriously cramped in the Babies Hospital. Some of the scientific work in this subject can be housed in existing School facilities but those laboratories are not convenient to the ward services of the Babies Hospital. The most satisfactory way to solve this problem would be to transfer some of the laboratories in the Hospital to the School, and to add a modest laboratory unit to the Babies Hospital in close proximity to its wards and readily accessible to the active clinical staff of the Department of Pediatrics.

## ANIMAL QUARTERS

Associated with the need of laboratory facilities is the urgent situation regarding the care of animals and the need for more adequate space for experimental animals. The present provisions at the Medical Center are unsatisfactory. Research activities and teaching are now seriously hampered by the lack of proper animal units.

## LIBRARY

Associated with the active research and teaching functions is the necessity for a satisfactory library. During the last twenty years the Medical Library has become one of the most important tools in medical education and research, not only for undergraduate students but for hospital residents, nurses, dentists, and members of the teaching staff. Utilization of the present library at the Center has increased 700 percent since it was built in 1928. The increase represents a significant comment on the role played by the library in the teaching and research program of modern medicine.

## PUBLIC HEALTH FACILITIES

Community, even national, concern over public health questions has placed upon the Medical Center and University added responsibilities in the field of public health teaching and research. Adequate facilities do not exist at the Medical Center for the development of a satisfactory program

in public health education and research, expanding as it is into the fields of public health and medical administration, hospital administration, tropical diseases, vital statistics, epidemiology, sanitary science, industrial medicine, medical sociology, health service plans, and a wide variety of activities that serve to apply modern medical and scientific knowledge to the health needs of communities and the population as a whole.

Plans were drawn in 1945 for a coöperative plan with the City of New York in building a Public Health Center in conjunction with the Columbia-Presbyterian Medical Center and on land donated by the University and Hospital to the City. This joint enterprise holds great promise of coöperation between a municipal government and a university group, not only in the training of public health personnel but in coöperation on a number of projects of vital research.

#### REHABILITATION AND CONVALESCENCE

Wide recognition recently has been given to rehabilitation and convalescent care. These phases of medical-social service and educational responsibility have not been widely appreciated until recently and must have immediate exploration and development. These responsibilities are not entirely medical in character and represent an ideal area of coöperation between medicine, social service, vocational training and guidance, industry, and the public. It is a field in which the Medical Center should move in conjunction with other organized efforts in the community. The new affiliation between the University and the well-established Institute for the Crippled and Disabled marks an important move forward in this field. It represents one more step toward the full integration of medical responsibility in the over-all medical care of the population.

#### NEW YORK ORTHOPEDIC DISPENSARY AND HOSPITAL

The decision made last year to move the New York Orthopedic Dispensary and Hospital to the Medical Center has introduced a special group of problems because of the necessity of converting certain floors in the Presbyterian Hospital and the Babies Hospital into orthopedic wards and of expanding the Vanderbilt Clinic to house the necessary out-patients services.

Currently the teaching program in orthopedic surgery is carried out satisfactorily at the present site at 59th Street, but there are many advantages in having that institution at the Medical Center. It should be moved at the earliest possible moment that it can be done without serious disruption of the rest of the Medical Center situation, particularly in relation to the inadequate provisions for private patients for the present staff at the Medical Center.

#### UNIT FOR INFECTIOUS DISEASES

Another important unit greatly needed at the Medical Center is one for infectious diseases. Such a unit would provide opportunities for studies of the newer methods for treatment and prevention of the various infectious diseases which are still of significant importance in the health problems of the community.

#### VANDERBILT CLINIC

The expansion of the Vanderbilt Clinic necessary to house the orthopedic program introduces the topic of expanding a number of the other clinics in order that they may more adequately meet the teaching and investigative responsibilities of the out-patient services and provide for the growing demands for medical care in the future through out-patient services, preventive medicine, health examinations, and other features of community medical care. The present Vanderbilt Clinic is crowded and does not possess a number of the teaching units that ought to be provided in such a clinic. The question of setting up a group practice program for insured employed persons can only be discussed in relation to the facilities in the hospital for such of those individuals as would require hospitalization. Such plans for group practice prepayment medical services designed to serve the insured population in this area of the City should await the development of the unit described earlier in this discussion.

#### AUDITORIUM

A serious lack at the Medical Center is that of an auditorium which would accommodate not only the whole student body, but, on numerous occasions, might serve for medical meetings and public assemblages



dealing with medical affairs. Tentative plans provide for this unit as a part of the proposed library building. The absence of such a unit at the Medical Center has handicapped many of our public and professional relationships.

#### DENTISTRY

The Dental School has been in rather cramped quarters ever since it came to the Medical Center. The new plans to extend the Vanderbilt Clinic to Broadway include the possibility of extending the Dental School also to Broadway on the three floors now occupied by the School. This addition, together with a transfer of some of the research work to the laboratories of the medical sciences, will probably take care of the situation for some time. There is, however, a very active program in post-graduate dental teaching of the greatest value which can be carried in the existing clinics, particularly during the vacation periods.

#### PERSONNEL AND STUDENT HOUSING

The situation regarding housing at the Medical Center is serious. The Presbyterian Hospital is making a considerable effort in solving this problem in the extension of the Anna C. Maxwell Hall for undergraduate nurses and the new Edward S. Harkness Memorial Hall for graduate nurses. There is urgent need for housing in this area for married medical and other students and for occupational therapy, physical therapy and dental students. It might be well to consider an addition to the present Bard Hall to help accommodate this group of students, including a group of married hospital residents and university fellows.

#### FINANCING GRADUATE TRAINING

At the present time the University is being assisted generously by the W. K. Kellogg Foundation in the financial support of the graduate program. A large number of residents and other medical men and women are benefiting by the Veterans Vocational Rehabilitation Act (Public Law 16) and the Servicemen's Readjustment Act of 1944 (Public Law 346). The hospitals realizing the great value of long periods of basic science training in the specialties for their own residents, are lengthening

the periods of training for a number of individuals who are receiving laboratory instruction in the sciences basic to their specialty. All of these endeavors increase the financial responsibilities for graduate teaching which ought to be in some way more fully supported by permanent funds.

#### FINANCIAL IMPLICATIONS

Substantial money will have to be provided in the future for support of the expanding research and teaching programs. A considerable, perhaps a major, part of such financial aid will come in the form of grants-in-aid from government sources, national foundations, educational groups, industry, and individuals. There will be a need for considerable amounts of money for the support of research workers, hospital residents, graduate students, and medical students because of the increasing costs of medical education and living expenses. A number of the present medical students are eligible for assistance under the Servicemen's Readjustment Act, but as time goes on many will exhaust their entitlement for government aid—some even during the period of college preparation, and others early in the medical course. It is going to be necessary to obtain more financial aid for students, and a large increase in endowments to provide security for the scientific staff and stability of the research and instructional programs.

#### SUMMARY

The following are among the urgent needs of the Medical Center for the near future. A number of the proposals involve considerable changes and planning in the Hospital as well as in the School.

1. Private patient unit
2. Addition to ward service for Internal Medicine
3. Additional research laboratories for medical sciences and clinical departments
4. Cancer research laboratories
5. Pediatric laboratories
6. Expansion of animal quarters
7. New modern library
8. Facilities for Public Health teaching and research
9. Accommodations for active rehabilitation

10. Transfer of New York Orthopaedic Dispensary and Hospital to Medical Center
11. Unit for infectious diseases
12. Vanderbilt Clinic expansion
13. Auditorium
14. Extension of Dental School
15. Personnel and student housing
16. Parking space
17. Alteration and expansion of service facilities in the Hospital units

These are the major considerations and proposals that can make it possible for the Columbia-Presbyterian Medical Center to maintain its pre-eminence in American hospital and medical leadership.

## DEPARTMENT OF ANATOMY

Professor SAMUEL R. DETWILER, Executive Officer

We have been fortunate in having the part-time services of Doctors Emanuel B. Kaplan, John Gazzola, Philip Wiedel, John Gramlich, David Elkin, Edward Kamen, and James Harrison to assist in the course in gross anatomy. The correlated instruction given by Professor Robert P. Ball and his associates or the Department of Radiology has been increased, and constitutes a very important adjunct to the course.

Under the program of graduate medical education, fifteen courses were offered to residents from the affiliated hospitals. The total registration in these courses numbered 247. For the general management of this important program within the Department we are indebted to Dr. Jose M. Ferrer.

Professor Adolph Elwyn, in addition to his neuroanatomical courses for medical, dental, and graduate students, gave a course of fifty lectures to residents of New York State psychiatric hospitals, and a course of twenty-three lectures in the postgraduate series for neurologists and psychiatrists. He has devoted considerable time to the preparation of the second edition of *Human Neuroanatomy*.

Professor Harry H. Shapiro has offered anatomy courses to postgraduate classes in orthodontics, oral surgery, and restorative dentistry. He has been appointed visiting lecturer in postgraduate anatomy at Tufts College and also at the New York State Institute of Applied Arts and Sciences. A second edition of his textbook on the applied anatomy of the head and neck has been published.

Professor Sherwood L. Washburn has completed an experimental study

on the influence of the temporal muscles upon cranial form. His studies on the thoracic viscera of the gorilla have been completed and will appear as a chapter in the Harry Raven Memorial volume. He has been granted a half-year leave of absence for an expedition to Kenya Colony to collect primates. This expedition is financed by the Viking Fund. Under his direction the Viking Fund is spending \$8,000 for a summer seminar in physical anthropology, which will bring together the largest group of anthropologists ever assembled for such a conference.

Professor Dan H. Moore is investigating factors such as diet, age, hormones, and lipids which influence the variation in the electrophoretic components of plasma. He has collaborated with the Departments of Obstetrics and Gynecology and of Surgery in the isolation of the milk factor in cancer of the breast in mice.

Professor Louis Levin is carrying out investigations on the possible relationship of the adrenal cortex to the leukemic state. In collaboration with Professor Earl T. Engle, and Dr. Charles L. Buxton of the Department of Obstetrics and Gynecology, studies are being made to determine the time of ovulation in women.

Professor William M. Rogers has completed a study on modifications of the human skull associated with muscle atrophy in young individuals, following anterior poliomyelitis and other causes which involve the V cranial nerve. Professor Rogers and Dr. Solomon L. Katz of the Department of Dental and Oral Surgery have presented the results of several years of investigation in the movie entitled *Dynamics of Normal and Pathological Temporomandibular Articulation in Man*. Professor Rogers and Dr. Henry Aranow, Jr., of the Department of Medicine have been completing their electronic equipment for studying neuromuscular responses in patients suffering from myasthenia gravis.

Professor Herbert D. Elftman has proceeded with his program of histochemical research. He has also continued to serve as consultant for the Committee on Prosthetic Devices of the National Research Council.

Professors Raymond C. Truex and Wilfred M. Copenhaver have completed the results of studies on the moderator band of the heart with special emphasis on the conduction system. Professor Truex is engaged in the cytological study of human sympathetic ganglia following removal from hypertensive patients. Professor Truex and Mr. Carl Kellner (departmental artist) have completed an *Atlas of the Head and Neck*. This work, now in the process of publication by the Oxford University Press, promises to be not only one of morphological accuracy but a masterpiece of medical illustration as well.

Professors Copenhaver and Detwiler have collaborated in studies upon the effects of sulfa drugs and thiouracil on embryonic development with par-

ticular reference to blood formation. Professors Copenhaver and Elftman are collaborating in a study of the distribution of phosphatase and of glycogen in amphibian embryos at different development stages.

Dr. Dorothy Z. Kraemer is engaged in a morphogenetic problem involving limb transplantation in amphibian embryos. In collaboration with Professor Detwiler, experiments are in progress which are directed towards an analysis of pigment formation in the eye.

Professors Moses Diamond and Edmund Applebaum of the Department of Dental and Oral Surgery have combined the teaching of Oral Histology with Oral Anatomy and Embryology. This procedure which was followed for both undergraduate and graduate students has yielded gratifying results for both the students and the staff. Professors Diamond and Applebaum have also been actively engaged in research work involving the embryology of oral structures, studies on caries, and growth of rat molars during early states.

Professor Engle has continued his studies on the structure of the endometrium as influenced by hormonal status and of the testis in cryptorchidism and enuochoidism. In collaboration with Professor John N. Robinson of the Department of Urology, new experiments have been conducted in attempts to increase sperm production in men with oligospermia and, with Dr. Buxton, further studies on the menstrual cycle have been pursued.

Under the residency program, Dr. Charles H. Lynch of the Urological Service has been studying the endocrine capacity of the testis of cryptorchid boys. Dr. Landrum B. Shettles of the Gynecological Service has been studying some properties of cervical mucus. Dr. Joseph Jailer, Rockefeller Foundation Fellow in Medicine, has been engaged in developing a new fluometric method for determining the estrogen content of urine and sperm. Professor Engle conducted an endocrine seminar for residents in the fall trimester.

Dr. William B. Atkinson has devoted his research time largely to the development of a program of cytochemical research on problems of reproductive physiology. In collaboration with Professors Engle and Elftman a series of observations have been made on the effect of the steroid sex hormones on the metabolism of alkaline phosphatase in the uterus.

Professor Philip E. Smith has continued his studies on pregnancy in Rhesus monkeys, and Professor Detwiler has collaborated with Professor Copenhaver in studies on the survival of operated and unoperated embryos following treatment with sulfa drugs. In addition, studies have been carried out on functional behavior of Amphibian larvae following new morphological combinations produced surgically in the embryonic nervous system. Professor Detwiler contributed to a Symposium on the Mechanics of Development under the auspices of the New York Academy of Sciences. He

addressed the Columbia Orthodontic Alumni Society at their annual meeting, and gave the James Arthur Lecture at the Museum of Natural History.

Dr. Theodora Nussman Salmon has been a guest investigator in the Department and has worked on the role of the thyroid gland in the growth of rats. Dr. Samuel Dvoskin, a fellow in Medicine, has worked full time in the Department during the year.

## DEPARTMENT OF BACTERIOLOGY

Professor A. RAYMOND DOCHEZ, Executive Officer

The teaching for medical and dental students has been restored to the pre-war schedule. A graduate course in bacteriology for returning veterans has been established by Professors Charles L. Fox, Jr., and Harry M. Rose. A course in chemotherapy for graduate dentists was also given again last year. The total number of students registered for Professor Rhoda W. Benham's course in mycology was twenty, of whom fourteen were Doctors of Medicine taking courses in the basic sciences at the Medical School. There have been nine graduate students pursuing a course leading to the degree of Doctor of Philosophy.

During the past year the Diagnostic Laboratory performed bacteriological and serological examinations on 58,542 specimens, thus continuing the increased activity which this laboratory shows from year to year. The penicillin laboratory has completed its first year of service and henceforth is to be designated the Antibiotic Laboratory because of the expansion of the range of its activities to include other antibiotic substances.

Studies on experimental poliomyelitis were continued by Professor Claus W. Jungeblut. An extensive study of the antigenic structure of various mouse-adapted strains of poliomyelitis virus, using cross neutralization and cross protection tests, was completed. In collaboration with Professor Rose, attempts were made to grow SK murine poliomyelitis virus in embryonated eggs. An arrangement was entered into with the Lilly Research Laboratories and with the Danish State Serum Institute to explore the possibilities for the production of an effective murine poliomyelitis vaccine. Under Professor Jungeblut's direction, Mrs. Alice W. Knox carried on research on poliomyelitic infection in the pregnant mouse. Professor Jungeblut is a member of the New York State Board of Medical Examiners.

Professor Beatrice C. Seegal, in association with Doctors Emily N. Loeb, Abbie I. Knowlton, and Herbert Stoerk, has extended previous work on the influence of desoxycorticosterone on cytotoxic serum nephritis in the rat produced by the injection of rabbit anti-rat kidney serum. With Dr. Loeb,

Professor Seegal is investigating the use of adjuvants in the production of cytotoxic sera. In association with Doctors Margaret Holden and Harold Baer, studies have been continued on the antibiotic protoanemonin.

Professor Theodor Rosebury and Dr. Ada R. Clark have resumed their studies of the anaerobic bacteria of mucous membranes which were interrupted during the war. Their laboratories have been re-equipped and work has been started on a long-range program with the aid of grants from the United States Public Health Service and the John and Mary R. Markle Foundation. Dr. Saul Frances is participating in these studies, as is a Dental Fellow, Dr. Harry Shpuntoff.

The work on filariasis carried out by Professors Rose and James T. Culbertson, with the collaboration of Professor José Oliver González, was terminated June 2, 1947. A final examination of patients treated with several antimony- and arsenic-containing drugs indicate that many of the 114 individuals treated now appear to be free from infection. Neostibosan proved to be the best tolerated and produced the highest rate of apparent cure. A summary of this work was presented by Professor Culbertson to the Royal Society of Tropical Medicine and Hygiene in London during March, 1947. For three months of 1947 Professor Culbertson was in London on sabbatical leave, collecting biographical material on the late Sir Patrick Manson.

Professor Rose, with the assistance of Miss Eleanora M. Molloy, has continued studies of an unusual virus that produces a chronic form of pneumonitis in rodents. The strain is the first to be isolated in the United States. An antiviral substance has been found in secretions of the human respiratory tract which inhibits the agglutination of erythrocytes by influenza virus and will partially neutralize the viruses of influenza, herpes simplex, and vaccinia, when tested in animals or chick embryos. Attempts are being made to concentrate and identify the substance.

A simple and specific cutaneous test for the diagnosis of infections with the virus of herpes simplex has been developed; studies have been initiated on the cultivation of mouse-adapted strains of poliomyelitis virus in chick embryos; and the inactivating effect of sulfur and nitrogen mustards on certain animal viruses has been demonstrated. Professor Rose has also isolated a hitherto unknown bacterium from two patients, one with bacterial endocarditis and the other with a brain abscess. He has recently undertaken studies of the new rickettsial disease, rickettsialpox, which are being made both clinically and in the laboratory.

Professor Fox's investigations under the Office of Scientific Research and Development on the chemotherapy of shock from burns and trauma disclosed a redistribution of sodium and exchange for potassium in injured tissues. The Shock Committee of the National Research Council now recommends

large volumes of sodium salt solutions. Adaptation by Professor Fox of the lithium internal-standard flame photometer for rapid and accurate analysis of sodium and potassium stimulated a variety of investigations. These studies, with Professor Donovan J. McCune of the Department of Pediatrics and Dr. Murray Bass of the Mount Sinai Hospital, reveal new factors beyond the Starling hypothesis in the formation of edema. With Professor Culbertson, it was found that the sodium and potassium changes in experimental trichinosis led to therapy with sodium salts which prevented death in rats and resulted in symptomless encystment of the larvae. Studies of intestinal fistulas and infection with Professor Harold D. Harvey of the Department of Surgery indicated a need for potassium and resulted in other improvements in fluid therapy.

Dr. Margaret Holden has isolated vaccinia virus from three cases of Kaposi's Varicelliform eruption in Babies Hospital. She has also investigated the physiology of *Cryptococcus neoformans* from the standpoint of the capsular material and, in collaboration with Professor Rhoda W. Benham of the Department of Dermatology, has studied the comparative virulence of six recently isolated strains. In association with Professor Seegal and Dr. Harold Baer, Dr. Holden has continued the study of the antibiotic activity of protoanemonin, but therapeutic results have been discouraging.

During the past year, Dr. M. Maxim Steinbach and Mr. Charles J. Duca have studied the effects of streptomycin in experimental tuberculosis in guinea pigs. In the past four months they have coöperated with the Pulmonary Division of Montefiore Hospital, performing that part of the work concerned with the isolation of tubercle bacilli from sputum or gastric contents and determining the sensitivity of these organisms to streptomycin. Two different chemicals are being tested for antituberculous activity on infected mice.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

The Department has lost two of its most active members. Professor DeWitt Stetten, Jr., has accepted an appointment at Harvard University. Not only is Professor Stetten's research work on the intermediary metabolism of fats and carbohydrates of outstanding significance but he had rendered notable contributions to the instruction of medical students in their first and fourth years. Dr. Konrad Bloch, an important member of the isotope research team, resigned early in the year to accept a post at the University of Chicago.

Professor Edgar G. Miller, Jr., has continued in charge of the work on the amino acid content of pure proteins by Professor Erwin Brand and his group,



formerly carried out under contract with the Office of Scientific Research and Development but now supported by a contract with the Navy. Under Professor Miller's guidance, Dr. Victor Ross has continued his studies on the compounds of protamine with diphtheria toxin, pure diphtheria toxoid, and tetanus toxoid.

Professor Goodwin L. Foster, who bears a heavy burden in the teaching programs, has further developed the isotope dilution method for the quantitative determination of individual amino acids in proteins.

Professor Maxwell Karshan, who is responsible for biochemical instruction of students of dentistry, has continued to apply the methods of biochemistry to dental problems.

Professor Erwin Chargaff has continued his work on the role of lipoproteins in cell structure and in blood coagulation, on the nucleoproteins of tubercle bacillus and on yeast on chromo proteins, on the composition of tissue lipids, and on the enzymatic oxidation of serine and inositol.

Professor David Rittenberg, in collaboration with Professor David Shemin and Dr. Irving London of the Department of Medicine, has begun to apply the use of stable isotopic tracers to problems connected with disease. A study of the dynamics of erythrocyte production in normal subjects and in individuals afflicted with pernicious anemia and with polythemia vera has thrown new light on the etiology of these diseases. The formation of plasma proteins and uric acid has also been investigated in the same subjects. Other studies, carried out by Professor Rittenberg and his group with use of stable isotopes, relate to the metabolic deamination of amino acid, the synthesis of cholesterol, and the hydrolysis of acetyl phosphate.

Dr. Zacharias Dische has continued his studies on the breakdown of adenosine phosphate in human erythrocytes and the nature of the carbohydrates associated with proteins in blood serum.

## DEPARTMENT OF CANCER RESEARCH

In the absence of a director members of the Department have attempted to develop their experiments and initiate some coöperative ventures. The work of the Department may be classified under three main headings, carcinogenic agents, hormones, and transplantable tumors and tumor immunity.

Professor Gray H. Twombly has studied the possible localizing effects of hormones on the site of cancer production by 2-acetylaminofluorene, and two related but hitherto untried compounds, N-succinyl-2-aminofluorene and N-carboxymethyl-2-aminofluorene, synthesized in the Department of Biochemistry. Professor Twombly obtained an interesting variety of cancers

in the external ear, skin, breast, liver and intestine in female and male rats but no localizing effects of estrogen, testosterone, or progesterone have thus far been found.

Professor Jacob Heiman and Miss Doris Meisel published their observations on the induction of benign and malignant tumors of the submaxillary glands and benign neoplasms of the parathyroid in rats by means of measured oral feedings of 2-acetylaminofluorene. Professor Milton J. Eisen has been studying effects of 2-acetylaminofluorene on guinea pigs and mice.

Professor Bernard S. Oppenheimer of the Department of Medicine has become interested in the induction of tumors by cellulose and has pursued his studies in this Department. In two different strains of rats in which spontaneous tumors did not occur, a significant number of sarcomas arose in the perirenal and subcutaneous sites. These tumors have proved transplantable. The observations should be of practical importance, as cellulose plastics are employed by surgeons, especially in vascular surgery.

Professor Edward L. Howes of the Department of Surgery has extended his observations on the development of gastric tumors in rats following the insertion of threads impregnated with methycholanthrene. Professor Heiman contributed observations on the carcinogenic hydrocarbons exposed to roentgen and ultraviolet radiation.

Great interest has been maintained on the relationship of hormones to atypical growths. Studies have been directed chiefly, as previously, to estrogens and their role in mammary cancer, utilizing mice and rats as test animals. Professors Twombly and Eisen are now engaged in a study of differences in estrogen susceptibility of two inbred but related rat strains maintained in the Department. Professor Twombly, in coöperation with Professor Cushman D. Haagenen of the Department of Surgery, is studying a group of cases of cancer of the breast showing bone metastases while receiving large amounts of testosterone.

Professor Twombly, in coöperation with the Department of Radiological Research and with Dr. Morris Engleman of the Department of Surgery, has produced radioactive dibromestronone, a steroid closely related to the female sex hormone, estrone. The radioactive element allows the course of excretion to be accurately traced through the liver, kidneys, and intestines.

Professor Twombly has prepared a monograph for the medical student and others not interested in the minutiae of the complicated field of hormone studies but anxious to get a survey of the entire subject. A symposium by many authors has been edited, with Dr. George Pack of Memorial Hospital, and will be published in June, 1947, by Oxford University Press.

Professor Heiman has begun a series of experiments on the relationship of hormone analogues and intermediary hormone synthetics to tumors.

A number of propagable tumors are maintained in this Department. Dr. Richard Jahiel, a volunteer associate in the Department, has been pursuing experiments in the hope of eliciting immune reactions to cancer cells. As with previous studies on tumor immunity, these observations suggest again that when positive results are obtained, the immunity is directed against a cell of a foreign strain, not specifically against it as a cancer cell. Dr. Jahiel and Professor Eisen attempted to alter the genetic qualities of tumors in August animals by exposing them to X rays prior to insertion into rabbit muscle, but these irradiated fragments likewise failed to produce immune bodies active against tumors.

Dr. Louis Herly has continued his observations on primary fluorescence of human and animal tumors, tumor extracts and blood serum of tumor animals when viewed in filtered ultraviolet light.

Dr. Zacharias Dische of the Department of Biochemistry, with the assistance of Mrs. Martha Osnos, is continuing his determination of the calcium content of mouse tumors and studying the question of the permeability of tumors to ingested or parenterally administered calcium.

The following organizations have generously supplied pharmaceutical products for experimental purposes: Schering Corporation, Hoffman-La Roche, Incorporated, Squibb Institute for Medical Research, International Vitamin Corporation, and Ciba Pharmaceutical Products, Incorporated.

## SCHOOL OF DENTAL AND ORAL SURGERY

Professor BION R. EAST, Associate Dean and Executive Officer

The academic year 1946-1947 was devoted to research, reorganizations of teaching and research staffs, modification of the programs of instruction, extending affiliations with hospitals, coöperation with public and parochial schools in their dental health programs, and participation in the professional educational program of the New York City Health Department.

The wisdom of integrating the faculties of the College of Physicians and Surgeons and the School of Dental and Oral Surgery as the over-all Faculty of Medicine has been further confirmed. This relationship has continued to be a most satisfactory experience, which leads to freer interchange of the research and teaching facilities of the various University departments of instruction contributing to the educational and training program of medical, dental, public health, and nursing students.

There were 196 applicants for admission to the first-year class of September, 1946, to which thirty were admitted. These applicants were from twelve different states, five foreign countries, and one United States possession.

The 180 dentists who took graduate courses during the year came from twenty-eight states, the District of Columbia, eight foreign countries, and one United States possession.

Probably one of the most reliable indicators of the interest and confidence of the public and the members of the professions in a professional school is the number, quality, and geographic distribution of inquiries and applications for admission to the school. Measured by these criteria, the Dental School is expanding its stature as a national and international institution of dental education and culture approaching that of other and older colleges and schools of the University.

#### DIVISION OF ORAL DIAGNOSIS

Under the direction of Professor Lewis R. Stowe, the Division of Oral Diagnosis carried out its scheduled routine of undergraduate teaching and participated in the program of postgraduate instruction. The Comprehensive Diagnosis Seminar inaugurated for the fourth trimester proved helpful. Patients were selected which offered a complexity of local oral problems together with fundamental medical relationships that the dentists may well encounter in practice.

The following studies by members of the Division are in progress: Professor Solomon N. Rosenstein with Professor Daniel E. Ziskin, "A Report on Recurrent Oral Aphthae"; Professor Edward V. Zegarelli, Cementomas, Idiopathic Radiolucencies of the Mandible, and Pulp Capping; Professor Joseph Cuttita with Professor Ziskin, "Abrasion and Erosion Studies."

Several papers were delivered by Professor Stowe at the District of Columbia Postgraduate Clinic, Washington, D. C. Professor Stowe served as a member of the Committee on *Guide for Health Service* printed and copyrighted by the Childrens Welfare Federation of New York City, Inc.

#### DIVISION OF OPERATIVE DENTISTRY

In December, 1946, Dr. Richard G. Carson resigned to devote full time to practice. Professor Irvin L. Hunt, Jr., was assigned Director of the Clinic and of clerical personnel; Dr. William John Miller was transferred to the staff of the Prosthetic Division.

We have been fortunate to secure the services of Dr. Harold Sherman, a graduate of the University of Michigan College of Dentistry, Dr. Joseph Fiasconaro, a graduate of Columbia University School of Dental and Oral Surgery, and Dr. Stanley Brzustowicz, also a graduate of Columbia University School of Dental and Oral Surgery. Dr. Herbert Fritz returned from service in the Army.

A most useful activity of the Division is the Staff Study Club. It is believed that this program will have a great influence in promoting uniformity of teaching, as well as developing skill and precision in the operations they are called on to teach the students. Professor Carl R. Oman, Division Head, serves as Director of the Study Group, assisted by Dr. William H. Silverstein.

Professor Daniel M. Kollen conducted a postgraduate course on root canal therapy for the First District Dental Society. Dr. Silverstein has given several clinics before various groups in New Jersey. Professor Oman appeared on the program as guest clinician for registered clinics before the annual meeting of the Montreal Dental Society in October. In November he was essayist at the Academy of Stomatology in Philadelphia. Dr. Joseph N. Colaneri has almost completed his task of illustrating the operative syllabus.

The postgraduate courses in operative dentistry have been conducted by Professor Oman assisted by Dr. Brzustowicz. Seven candidates for certificates of training in restorative dentistry completed their course June 10, 1947. In addition, two groups of four completed the shorter four months course. Twenty-one applicants registered for the two-week refresher course in operative dentistry clinical practice.

#### DIVISION OF PERIODONTIA

In addition to the regular undergraduate periodontia clinic, periodontology theory, and oral hygiene theory courses, two long-term postgraduate refresher courses have been given. An intensive two weeks' full-time course was given in advanced periodontology theory and practice to a group of nine dentists. The regular intensive full-time refresher course was given to a class of thirteen.

During the year Professor Harold J. Leonard held the following offices: Secretary-Treasurer of the American Board of Periodontology; Secretary Treasurer of the Advisory Board for Dental Specialties; Advisor to the Committee on Specialization of the Council on Dental Education; Associate Editor of the Journal of Periodontology; Chairman of the Periodontia Section of the American Association of Dental Schools; and Vice-Chairman of the Periodontia Section of the American Dental Association.

Professor Isador Hirschfield gave lectures and clinics before the following organizations: lecture before the Eastern Dental Society, the Robert T. Freeman Dental Society and the Faculty of Dentistry of Howard University, and the Pinellas County Dental Society, St. Petersburg, Florida, officiated in charge of a postgraduate course at Tufts College Dental School in Boston; and lectures before Beth Israel Hospital Dental Staff the Midtown Dental Society.

Professor Frank E. Beube continued his investigation on the effect of fibrin foam and bone powder in the healing of pyorrhetic lesions in both humans and animals. Professor Beube spoke before the following professional groups: The Eastern Dental Society of New York, the Midtown Dental Society, The First District Dental Society of New York, The Essex County Dental Society of New Jersey, the Bronx-Northern Dental Society, the Southern Academy of Periodontology in Miami, and the Northeastern Dental Society of New York.

Dr. Jacob S. Friedlander gave lectures before the Hoboken (New Jersey) Dental Society, the Essex County Dental Society, the Northern District Dental Society of New York, and the Midtown Dental Society. Dr. William A. Themann gave clinics before the New Jersey State Dental Society, Midtown Dental Society, and the Bronx-Northern Dental Society. Dr. Herbert J. Bartelstone, a fellow in Dentistry at Montefiore Hospital, reported his preliminary findings in the use of radioactive iodine as a tracer in the study of the physiology of teeth.

The resignation of Dr. Harold J. Leonard, Professor of Dentistry and Head of the Periodontia Division, was accepted with regret effective June 30, 1947.

#### DIVISION OF ORAL SURGERY

Perhaps the most important development associated with the Division of Oral Surgery under the direction of Professor Maurice J. Hickey has been its continued close relationship with the Neoplasm Clinic of Presbyterian Hospital. The early recognition of suspected or active neoplasms of the oral cavity is probably the greatest opportunity that members of the dental profession have to affect the death rate of the population. It is because of this fact that so much satisfaction is taken from the Columbia-Presbyterian program of coöperative teaching.

Preliminary reports on the work done with absorbable hemostatic agents in the mouth have been submitted for publication. This project was started under the sponsorship of Professor Virginia Kneeland Frantz of the Department of Surgery, and is being expanded to determine the value of these agents in oral surgery situations other than control of hemorrhage. Studies on the use of penicillin are continuing, particularly relating to the effect on painful postoperative extraction sockets.

Professor Hickey participated in the Morton Centennial held in Boston. He also has coöperated with the United States Public Health Service in its campaign to instruct the practicing dentist in oral cancer detection and reporting, and has appeared before the Rhode Island and the Maine State Dental Societies in their cancer programs.

Dr. Walter Stevens has recently been elected Vice-President of the New York State Board of Dental Examiners. Professor Francis S. McCaffery, after many years of valuable service to the University, has resigned.

#### DIVISION OF RADIOLOGY

Under the direction of Professor Houghton Holliday the Radiology Division cared for 9,248 patients, and produced 42,846 x-ray negatives during the past academic year. The work of the Division has been improved as a result of the replacement of three dental units and another dental unit has been added which enables the students to receive instruction and experience on more than one type of apparatus.

#### DIVISION OF PEDODONTOLOGY

This Division continued its teaching and research program under the direction of Professor Ewing C. McBeath. The success of this activity can be attributed in no small measure to the full attendance of the teaching staff and individual instruction of the students during clinic hours. The effect of this comprehensive and intensive teaching supervision was particularly apparent in the work and records of this year's class. The clientele of the clinic now simulates that of a private practice, most of our patients coming from families whose other children have outgrown our clinic and from families referred to the clinic by satisfied parents of past patients. Also the public schools now have a smoothly working system which maintains a close check of the dental condition of each pupil and requires immediate attention to his dental needs.

The Division staff devoted a good part of their time to postgraduate work. The two-week intensive course in June, 1946, brought a fine representative group of New York State practitioners. Some general practitioners preferred the fifteen week clinical course. In these as well as the short courses the Pedodontic Division received the whole-hearted coöperation of the Division of Orthodontics in regard to space maintainer work and preventive orthodontics.

Professor McBeath lectured at the meeting of the New York Society of Dental Hygienists in March. He is continuing research studies on agenetic missing permanent teeth in children and comparison of incidence of caries on different tooth surfaces in early dentitions of children.

Professor Solomon N. Rosenstein gave a lecture on pedodontics at the Westchester Dental Society, Yonkers, N. Y., and participated in a panel discussion on Children's Dentistry at the Five-State Postgraduate Dental Meeting of the Washington (D.C.) Dental Society on March 10, 1947.

## DIVISION OF PROSTHETICS

Under the direction of Professor Gilbert P. Smith the staff has been endeavoring to improve its teaching material. The staff has been meeting one night each week through the year as a study group with this as an objective. The staff also has been working on syllabi for the Division's various activities. Coördination of teaching within the Division and with other divisions is progressing. It should be possible to eliminate duplicate coverage of many points of instruction. Careful analysis of the varied procedures may reveal ways of accomplishing a satisfactory result with less expenditure of students' time.

Two innovations have been introduced in the sophomore technic courses which are conducted by Professor Max A. Pleasure (in charge of Full Denture Technic), Dr. Oscar E. Beder (Partial Denture Technic), and Dr. Robert E. Herlands (Crown and Bridge Technic). Much credit should be given to Doctors Beder and Herlands and to Mr. Howard J. Rogers, Assistant in Dental Technic, for their successful handling of this change in teaching method.

The Junior Clinic teaching has progressed in a gratifying manner. This class has produced work of a quality comparable with that of previous senior classes and should make a creditable showing their senior year. Those assisting in the Junior teaching were Professor Pleasure, Doctors George Hindels, Oscar E. Beder, Robert E. Herlands, William J. Miller, I. Frank Boscarelli, and Gustav T. Durrer, and Mr. Howard J. Rogers.

The Senior Clinic has required more of the attention of the staff than any other phase of our activities. Full denture construction has been under the able direction of Professor Harry A. Young, partial denture construction under Dr. Hindels, and crown and bridge under Dr. Henry R. Junemann. There has been a definite improvement in the quality of the work turned out. Those on the Senior Clinic Staff were Professor Young, Doctors Junemann, Hindels, Beder, Herlands, and Miller, and Mr. Rogers.

The waiting list of surgical prosthetic cases is increasing and more time could be devoted to this phase of our work if staff time and a private operating room were available for these afflicted and sensitive patients. The requests by other departments in the Medical Center for aid in providing various types of splints, stents, tantalum plates, leadshields, and extra-oral prosthesis are steadily increasing. In surgical prosthesis we have an excellent opportunity to integrate dentistry with many phases of medicine. Doctors Beder and Saporito are to be commended for their initiative and interest in this field.

Professor Pleasure and Dr. Saul Misheloff deserve commendation for their work in the postgraduate courses in restorative dentistry.

Doctor Ayers is continuing his investigations on amalgam, zinc cements,



casting technic, and waxes. A considerable portion of his time is taken up by the manufacture of gold alloys for clinic use.

During the year the following were added to the Prosthetic staff: Doctors William J. Miller, Gustav T. Durrer, and I. Frank Boscarelli. The resignation of Professor Donald J. McLaughlin was accepted with regret.

The Prosthetic Division gave a group presentation announced as the Columbia University Crown and Bridge Program at the Bronx-Northern Dental Society on March 20, 1947. Those participating were Doctors Misheloff, Miller, Herlands, Boscarelli, Beder, Hindels, Junemann, and Smith. Professor Harry A. Young presented papers at Boston, Mass., and at Garden City, Long Island. Dr. George Hindels addressed the Greater New York Dental Meeting Clinic. Dr. Oscar E. Beder gave two lectures at Teachers College during the year. Dr. Louis A. Saporito presented a paper at the Tri-County Dental Society, Morristown, New Jersey. He addressed the clinic at the New Jersey State Dental Society Semi-annual Meeting in Newark, New Jersey. Professor Louis A. Cohn presented papers before the Prosthodontia Section of the First District Dental Society, the New York Society of Orthodontists, the Ossining Dental Group, and the Second District Dental Society. He gave a course for postgraduate students at the Second District Dental Society in January, 1947. Professor Smith presented a paper at the October meeting of the Prosthodontia Section of the First District Dental Society.

#### DIVISION OF ORTHODONTICS

The curriculum for graduate courses has been revised and strengthened. Beginning September, 1947, one class will be admitted per year rather than two as in the past. Another major improvement in the program of instruction was the lengthening of the training period to fifteen months and the admission of full-time students only.

The new programs of instruction for the undergraduate student have proven fruitful. The prevention and correction of simple types of malocclusion and adult orthodontics for restorative procedures has been most beneficial to the student and enthusiastically received by patient, student, and many of the staff. This latter phase of the program has presented welcome opportunities for coöperation with other divisions of the School.

The Department of Anatomy and the Orthodontics Division coöperated in the preparation of an illustrated lecture, "Dynamics of the Temporomandibular Joints in Normal and Pathological Conditions," presented in May by Doctors William Rogers and Solomon Katz.

The Division held two one-day seminars for the members of the Columbia University Orthodontic Alumni Society. These seminars were exceptionally

well attended and members came from all over the United States and Canada.

Two short courses for orthodontists were given during the year. These courses attracted men and women from many states and from Canada. Dr. Joseph Johnson of Louisville, Kentucky was in charge of the course. He was assisted by Doctors George Crozat of New Orleans, Joseph Eby of New York, John Doce, Volunteer Clinical Assistant, and other members of the staff. The second course for orthodontists was conducted by Dr. John Mershon of Philadelphia, assisted by Dr. Marie C. Alkon of Boston and staff members.

The resignations of Associate Professor George S. Calloway and Assistant Professor Henry Barber were accepted with regret during the year. The death of Professor Milo Hellman is reported with sincere regret.

During the year members of the staff gave lectures or demonstrations before the Periodontic Society, the Second District Dental Society, the Trenton (New Jersey) Study Club, the Alpha Omega Fraternity in Detroit, and in Dallas, Texas, and Havana, Cuba.

Professor Arthur C. Totten, Head of the Division, served as faculty member of the Editorial Board of *Dental Abstracts*. Professor Henry U. Barber served on the Orthodontic Advisory Committee for the New York State Health Department; the Public Relations Committee of the American Association of Orthodontics; the Credentials Committee of Better Dentistry Meeting, State of New York; and Advisory Committee on Dentistry; Institute of Applied Arts and Science.

Dr. James Jay served as Editor of the Section of Operative and Preventive Dentistry of the First District Dental Society of New York and as a member of the faculty on the Editorial Board of *Dental Abstracts*. Dr. William Keller served as Chairman of the Board of the Northeastern Society of Orthodontists.

#### DENTAL HYGIENE

Twenty-four students were awarded certificates in dental hygiene, having completed the Course for Dental Hygienists directed by Mrs. Frances A. Stoll. The F. J. Swanson Medal was awarded to Mrs. Harriet W. Kaelin, the Albert Stevenson Medal to Miss Millicent Strusser.

The students were enrolled from eight states of the eastern half of the United States; five were veterans of the Army, Navy, and Marine Corps; two were graduate nurses. Eighteen students entered with advanced education beyond the minimum requirements for matriculation.

A dental health education demonstration was conducted at Teachers College for the purpose of acquainting the Health and Physical Education Departments and the foreign students with the work of the dental hygienists, and to demonstrate the value of dental hygiene and its influence on the general health. The project was organized by a student in Health Education with

the assistance of Mrs. Stoll. Miss Alberta Beat conducted and supervised the project. The demonstration continued for six days, thirty-two students receiving dental prophylaxis.

Mrs. Stoll was appointed Chairman of the Committee on Education of the American Dental Hygienists Association, Vice Chairman of the Dental Section of the American Public Health Association, member of the Sub-Committee on Educational Qualifications of Dental Hygienists of the American Public Health Association, and member of the Committee on International Scholarship of the Pilots Internal Club. She was elected an honorary member of Phi Delta Gamma, Zeta Chapter, Columbia University, and a fellow of the American Public Health Association.

#### DIVISION OF HOSPITAL DENTISTRY

During the year Dr. Albin R. Seidel resigned as Director of the Presbyterian Hospital Dental Service and Professor Samuel Birenbach was appointed in his place. Contemplated changes and improvements should make this service, it is believed, comparable to that rendered by other departments of the Hospital.

Operative and postoperative instruction was given both postgraduate and undergraduate students in the Hospital operating rooms and wards by Professor Birenbach and Maurice J. Hickey. A major accomplishment for furthering the training of both postgraduate and undergraduate dental students in the dental care of the sick was the completion of a formal affiliation between the Dental School and the Dental Department of Montefiore Hospital. The staff of the Montefiore Hospital coöperated without stint in a program whereby the members of both the junior and senior classes of the Dental School were in attendance at the hospital one week during the year. As this affiliation develops, it offers great possibilities in teaching and research.

Again our affiliate, Mount Sinai Hospital, assisted in the training of postgraduate students in oral surgery. Our relationship with the hospital offers splendid opportunities in the postgraduate field.

#### DIVISION OF RECORDS AND PERSONNEL

Under the direction of Professor Irvin L. Hunt, further steps in the centralization of clinical records have been accomplished. During the next year all records pertaining to the clinical experience of patients of the various divisional clinics will be contained in a unit record.

Under the present arrangement the Division of Records and Personnel is responsible for the registration and assignment of patients required for student instruction, for all the distribution of supplies and equipment other than

that required by the various divisions in the classroom, for the general management of the clinic, and for the securing and management of the clerical personnel.

The total number of patients admitted during the academic year to the Dental Clinic was 8,263.

#### DIVISION OF POSTGRADUATE STUDIES

The postgraduate program under the direction of Professor Daniel E. Ziskin has progressed remarkably. The demand for training in the fields of orthodontics and oral surgery is far beyond the ability of the School to meet. The Division is aware of the constant need to improve the quality of the training program and has introduced several changes in the program of instruction to strengthen it. These changes and additions have been made with the advice and consent of the principle clinical divisions involved. The main objective in improving the training of the postgraduate student preparing for specialization has been to broaden his base and to widen his educational horizon. Hence, the program now cuts across many divisions of the Department as well as various basic science and clinical departments of the University, affiliated hospitals, and other coöperating institutions such as the American Museum of Natural History.

During the year the course in general restorative dentistry leading to a Certificate of Training was offered for the first time and required full-time attendance for the entire academic year.

The fellowship program for dentists in basic sciences is now under way. A dental fellow was placed in each of the following basic science departments: Bacteriology, Physiology, Pharmacology, and Biochemistry.

During the year twenty-two short courses for dentists and dental hygienists were given. These courses were well attended and are thought quite worthwhile as a contribution to the further education of members of the profession. Unique for this School was the offering of the two short courses for dental hygienists which were well received and will be offered again.

#### CLINICAL RESEARCH

The year saw the idea of a general clinical research laboratory for the Department of Dentistry realized. The physical effects and equipment were made possible by a grant from Hannah and Harry Posner, whose name the new laboratory bears. Under the direction of Professor Daniel E. Ziskin, a number of important problems are being investigated. Among them are included a series of comprehensive studies of chronic mouth diseases such as pyorrhea, desquamative gingivitis, lichen planus, and leukoplakia, under

the direction of Professors Ziskin and Maxwell Karshan of the Department of Biochemistry, assisted by Professor Edward V. Zegarelli and Doctors Oscar Pelzman of the Central Islip Hospital in Long Island, Frederic K. Heath of the Department of Medicine, George Stein, Herbert F. Silvers, Benjamin Tenenbaum, David A. Dragiff, and Henry I. Nahoum. This undertaking involves psychiatric interviews, physical examinations, comprehensive chemical analyses of blood serum, and blood counts, as well as treatment of the diseases in an effort to throw further light on their etiology.

A study on dental caries is under the direction of Professors Karshan and Ziskin, assisted by Doctors Irwin D. Mandel and Henry I. Nahoum. A study for the purpose of determining the effects on weanling rats of pantothenic acid and biotin deficiencies, and their relationship to each other in producing and preventing oral lesions, is being made by Professors Ziskin and Karshan, assisted by Dr. Dragiff. An effort is being made to determine the effects of a new preparation of glycerite of hydrogen peroxide on certain oral diseases by Professors Ziskin and Karshan, assisted by Doctors Mandel, Nahoum and Leonard Koenig. A study by Dr. Lester Winter, Volunteer Clinical Assistant, concerns the use of phonetic tests in establishing vertical dimensions, rest position, free way space and centric relation in prosthetic dentistry. An investigation was recently completed by Professor Ziskin on *The Effect of Oral Penicillin in the Treatment of Vincent's Infection* and is now in press.

Papers were read by Professor Ziskin before the Philadelphia Periodontia Groups, the Greater Boston Dental Society, the American Association for the Advancement of Science, the Delaware State Dental Society, and the New York Alpha Omega Club; and with Professor Edward V. Zegarelli, Dr. Charles Slanetz, and Dr. John A. Field before the First District Dental Society of New York, the Schenectady Dental Society, and the Naval Dental School at Bethesda, Maryland.

Papers were read by Dr. George Stein before the Greater New York Dental Society, the New York Medical Forum, and the New York First District Dental Society.

A course of four lectures on "X-ray Diagnosis and Oral Lesions" was given by Professor Ziskin to physicians specializing in Roentgenology.

## DEPARTMENT OF DERMATOLOGY

Professor J. GARDNER HOPKINS, Executive Officer

In view of the retirement of the present Executive Officer, it seems appropriate in this report to review in some detail the development of the Department. In 1925 the death of Professor John Addison Fordyce was an

irreplaceable loss. Under his leadership and that of his devoted associates, Professors George Miller MacKee, Fred Wise, and Isadore Rosen, the clinic had won high and deserved reputation.

Twenty-five years ago the interest of dermatologists everywhere was turning from morphological diagnosis and empirical treatment to study of disease processes and to more rational therapy. Progress was made with difficulty because facilities for the care and study of skin diseases were meager. Less financial support had been given to research in dermatology than in almost any other field of medicine. Ignorance of the etiology of many prevalent diseases of the skin presented a challenge, but most accurate and thorough study of the skin lesions themselves had failed to solve these problems. It seemed evident that further progress would depend on knowledge derived from the basic medical sciences and on integration of clinical study of the skin with that in other fields of medicine.

Twenty years ago the Department of Dermatology was, as it is still, essentially a self-contained unit in the outpatient department. The organization of a section for general dermatology, a section for syphilis, a section for physical therapy, and a laboratory for histopathology developed by Professor Fordyce was maintained. To these were soon added a section for allergic diseases, a section for fungus infections and, some years later, a section for diseases of nutrition. Laboratory space for mycology was loaned by the Department of Pathology and for chemistry by the Department of Public Health and later by the Department of Biochemistry. On moving to the Medical Center in 1928 six beds on the Medical Wards were allocated to Dermatology. In 1937 when the Medical School was enlarged a department office and two laboratories were allotted. From 1941 to 1944 a four-bed ward was loaned by the Department of Medicine for a study of intensive therapy of syphilis. Additional laboratory space for special projects has been loaned from time to time by the Department of Pathology and Medicine.

A chemist, a mycologist, a pathologist experienced in study of internal disease, and one full-time junior clinician were added to the staff in the first year. Later a fellowship for one full-time graduate student was obtained, in 1941 one residency was established in the Presbyterian Hospital, and in 1944 a second residency to provide for the small group of patients under our care and the increasing number seen in consultations in all parts of the Medical Center. From 1941 to 1944, during Professor A. Benson Cannon's study of intensive syphilis therapy, funds for two assistants to these residents were secured. Last year a full-time instructor in charge of graduate students was made possible by a grant from the W. K. Kellogg Foundation.

The section for syphilis was organized by Professor Cannon for intensive investigation of the systemic as well as the cutaneous aspects of this disease.

Emphasis is on the prolonged follow-up essential for true evaluation of therapy. The social service indispensable for such follow-up was organized by Mrs. Gertrude Dougherty and carried on by Miss Marion Hersey and Miss Ethel Farrington. Professor Lewis B. Robinson has followed many cases personally for ten, twenty, or even twenty-five years. Professor Dabney Moon-Adams has brought to our aid, in teaching and in management of congenital syphilis, thorough knowledge acquired in her special clinic at Bellevue Hospital. Dr. Elizabeth Laszlo has cared for prenatal as well as congenital cases and Dr. James Ridgway has been an enthusiastic worker and teacher in this field.

From the first Professor Cannon has been interested in intensifying and shortening the treatment period for cases of early syphilis. His syringe method for injection of old arsphenamine made the use of this potent arsenical far more practical. His study of six-day treatment with arsphenamine placed him in a strategic position to contribute to the study of penicillin therapy. His present aim is to develop methods reliable for intensive treatment of early cases on an ambulant basis. Professor Cannon's work in the Vanderbilt Clinic has been correlated with his service at the City Hospital where his large and varied clinical material is used both for investigation and for teaching.

Physical therapy, including the use of x-ray, radium, ultraviolet light, high frequency currents, and refrigeration, is of peculiar importance in dermatology. Professor George C. Andrews has developed this section of the clinic. In 1930 a generous gift of radium by Mr. James N. Hill promoted study of this powerful therapeutic agent. Recent acquisition of contact and special low voltage equipment was an important asset. Professor Andrew's work on treatment of angiomas is outstanding. His studies with Mr. Carl V. Braestrup on depth-dose, exit dose, and low voltage radiation have started a trend throughout the specialty toward safer radiation therapy. For several years Professor Andrews has conducted the course in physical therapy at the American Academy of Dermatology.

A section for the study of allergic dermatoses, perhaps the first to be established in a dermatological clinic, has been conducted since 1927 by Professor Beatrice M. Kesten. A nurse to perform skin tests and a dietitian to supervise diagnostic and therapeutic diets attend each session. For special projects a mycologist and a psychiatrist have joined the team. Professor Kesten was the first among dermatologists to recognize food allergy as an important cause of dermatoses. With the expert coöperation of Miss Irene Waters of the Department of Nutrition, elimination diets for diagnosis and effective schedules for oral desensitization to foods were developed.

Professor Kesten demonstrated, probably for the first time, the possibility

of desensitizing patients with contact allergies by surface application of graduated dilutions of their allergens. In this clinic early studies on asthmas caused by saprophytic fungi were made and the first case of eczema due to such sensitization was reported. Pioneer work was done in study of cholinergic urticaria and other allergy-like phenomena produced by physical or psychic stimuli. Studies on urticaria showed the responsibility of bacterial allergy for many chronic cases. With Doctors Cornelius J. Kraissl and J. Grier Cimiotti of the Department of Surgery, Professor Kesten proved experimentally the disruption of wounds by allergy to catgut. The treatment of urticaria by ephedrine was first reported by Professor Kesten, and she has recently made studies on new antihistaminic agents. In the last two years, in collaboration with Dr. Elias Schneider, a combined psychosomatic and dermatologic study of allergic and other selected dermatoses has been organized.

Increasing evidence of the importance of nutritive and metabolic disturbances in the etiology of dermatoses led Professor Paul Gross, with the coöperation of Professor Kesten, to establish in 1938 a special clinic for nutritional disorders. Professor Gross's studies on the nutritional control of zinc and thallium poisoning in rats had revealed one mechanism by which vitamin deficiency may affect the skin. This investigation was supported by grants from the John and Mary R. Markle Foundation. Clinical studies by Professor Gross on nummular eczema have defined this previously vague entity and shown the importance of nutrition in its etiology. Decisive cures in previously intractable cases have been obtained. Investigations made with Professor Kesten on psoriasis have shown the frequent association of this disease with other disturbances in metabolism.

The fundamental importance of the biopsy in the diagnosis of diseases of the skin had been emphasized by Professor Fordyce. Professor Gerald F. Machacek had developed the histopathology of dermatoses with special reference to general pathology and has made histology a means of revealing pathogenesis as well as of accurate classification of lesions. The course which he has developed for graduate students is outstanding. An indication of Professor Machacek's accomplishment is that over 11,000 biopsy specimens have been studied.

The mycological laboratory was established by Professor Rhoda W. Benham in 1926. Dr. Richard M. Pearce saw the need for development of medical mycology and a grant from the Rockefeller Foundation in 1928 made extension of this work possible. Its development owes much to the stimulating advice of Dr. Bernard O. Dodge who has shown enthusiastic interest in the project since its inception. Mycology is the only section of the Department staffed by full-time investigators. This has made possible the



conduct of important research, the development of postgraduate study and the operation of an adequate diagnostic laboratory. The results demonstrate what might be accomplished in other neglected fields of dermatology by investigators with sound fundamental training, provided with adequate facilities.

Professor Benham's studies on the fungi of blastomycosis and cryptococcosis clarified the confusion in a field obscured by synonymy. Her papers on cryptococci, moniliae, and the pityrosporum are up to the present definitive. Her recent work on the nutrition of the fungi has fundamental significance. In this laboratory Dr. Chester W. Emmons classified the dermatophytes on a sound mycological basis and made illuminating observations on variations occurring in monospore strains. He also developed a method for fungicide testing now widely employed. Dr. Edward D. DeLamater made systemic study of the development of allergy and immunity during the course of trichophytosis in the guinea pig. Mycologists aided clinical studies on the mycoses of Puerto Rico by Professor Kesten, on sporothricosis by Dr. Elwood C. Weise, and on an epidemic of epidermatophytosis by Dr. Samuel T. Mercer. Ground work in this laboratory made possible the development of new therapeutic agents for the armed forces during the war.

A course in medical mycology initiated by Professor Benham in 1937 has attracted students of dermatology and biology from all parts of this country. For several years applicants for advanced study have been more numerous than her laboratory could accommodate. Of her former associates and students, Dr. Emmons is now Principal Mycologist at the National Institute of Health; Miss Mary E. Hopper has assisted Dr. George M. Lewis in developing mycology at the New York Post-Graduate and Cornell University Medical Schools and is co-author of his standard text on medical mycology; Dr. Arturo L. Carrión is Professor of Mycology at the School of Tropical Medicine at San Juan; and Dr. Edward D. DeLamater is mycologist for the Mayo Clinic.

A diagnostic laboratory for mycology is located in the Dermatology Clinic, in which 2,951 specimens from outpatients and 410 from hospital cases on various services were examined during 1946. Numerous cultures from outside sources were sent in for identification.

In the chemical laboratory Dr. Eugenia W. Maechling has developed methods useful in the study of drug allergies and intoxications and of porphyria. With Professor Alwin M. Pappenheimer she identified bismuth in renal epithelial inclusions. Dr. Maechling's main contribution has been detailed studies on arsenic retention and excretion made in collaboration with Professor Cannon.

Many contributions have been made from this Department to other phases

of dermatology. Perhaps the most outstanding were Professor Andrews' studies on pustular bacterids which defined and named a new disease, revealed its etiology, and made possible decisive cures in hitherto baffling cases. Studies by Drs. Hermann Feit, Frank Vero, and Elizabeth Laszlo on pustular rosacea revealed a similar etiology and method of cure. Professor Cannon described the White Sponge Nevus, a new dermatologic entity. The first report on invasion of the eye by lymphogranuloma venereum was made by Dr. William Curth. In 1927 Professor Cannon and Dr. F. Philip Lowenfish made the first report from this country since 1877 on blocking varicose veins with sclerosing agents, a method which has since been widely used by dermatologists and surgeons in treatment of ulcers and hypostatic dermatitis.

Several new dermatological entities described abroad were first recognized in this country by Professor Gross, Dr. Helen Curth, and Dr. Lawrence K. McCafferty. To indicate the scope of work accomplished mention should be made also of the studies by Professor Cannon on arsenical lesions on the therapy of skin tumors, on the etiology and treatment of lupus erythematosus, on epidermolysis bullosa, and on reinfection in syphilis; of Professor J. Lowry Miller on panniculitis and on treatment of tinea capitis and of pyodermas; of Professor Leslie P. Barker on generalized herpes zoster and on the effect of estrogens in tinea capitis; of Richard Kelly on the use of moccasin venom in herpes simplex; of Dr. Robert R. M. McLaughlin on treatment of radiodermatitis with the fat-soluble vitamins; of Dr. Lowenfish on the use of cataphoresis in local therapy; of Dr. Weise on immunization with staphylococcus toxin; of Dr. Theodore Rosenthal on estrogen excretion in acne; of Dr. Helen Curth on acanthosis nigricans and on Behcet's syndrome; of Dr. Veron on scleroderma; of Drs. Veron and Machacek with Dr. Frederic M. Bartlett on congenital cutaneous osteomas; of Dr. Samuel T. Mercer on the skin lesions of monocytic leukemia; of Dr. John W. Palmer on bromide intoxication; of Dr. Israel Zeligman on porphyrins and photosensitization; and of Dr. Murray Sanders on cultivation of the virus of lymphogranuloma venereum.

In reviewing the twenty years one is impressed more by the great opportunities for investigation and the problems that still await solution than by the accomplishments to date. The record is not one of great discoveries but of many small advances and these advances have been along lines pursued by others in many other centers. Such is, however, the nature of most medical progress. As a result, etiology has become a little less obscure, diagnosis more certain, and treatment more effective. Perhaps our greatest gain has been in a mental attitude less obsessed by morphology, more curious as to pathogenesis, and more confident in therapy based on experimental science.

An important gain has been the interest of our staff in the care of the patient. Every effort has been made to study not only his skin lesions but the internal diseases, the psychological and even the economic problems that are so often responsible for his illness. The number of patients with difficult and interesting problems who come to this clinic and their faithful attendance is evidence of the quality of service given them. This is important because exemplary care of the patient is fundamental to sound clinical teaching.

Teaching of undergraduates is our primary function. It has been restricted to matters most important for the young general practitioner: the recognition of common skin lesions of almost daily occurrence; syphilis, its diagnosis and treatment; epithelioma and precancerous lesions, their differentiation from benign neoplasms; and the simple but important techniques of intravenous and intramuscular injection and of lumbar puncture. Presentation has been by case study and informal discussion in small groups; lectures have been reduced to a minimum. Professor Barker has developed a series of case demonstrations to sections of the third-year class which cover the most important ground work. Case material is increased by biweekly visits to Professor Cannon's service at City Hospital. Professor Miller has organized individual case study in the fourth year, the students serving as clinical clerks and presenting their patients for discussion by the group of the day.

A great difficulty was adequate presentation of syphilis in the short time available and with our limited clinical material. To meet this handicap, three afternoons are set aside in the fourth year for a syphilis symposium which has been directed by Professor Miller. Groups of cases are collected representing each important phase of syphilis (primary, secondary, cardiovascular, neurological, congenital, etc.). Dr. Rosental, who is Director of the Bureau of Social Hygiene at the New York Department of Health, and other staff members who have services at other hospitals aid in assembling adequate case material. To these case presentations are added demonstrations on serology, pathology, and fever therapy. The students, in groups, rotate through these demonstrations on a fixed time schedule. This insures that every student will see examples of each important phase of this disease and by seeing them in sequence be impressed with syphilis as an infection of the whole organism rather than as a lesion of some special organ. On the same days lectures are given by guest speakers expert in some phase of this disease.

Graduate training for specialists in dermatology in this country was for years restricted to the few available residencies and to apprenticeship training obtained by working part-time in a clinic and part-time in a private office under an individual preceptor. With increasing complexity of the technical

matters to be covered, courses were developed in various centers which for a while threatened to supplant clinical experience by an elaborate didactic program. A balance is now being reached. In the past two years our program of three-year graduate education has been enlarged to meet the urgent demand for specialist training. In addition to two residents in the Presbyterian Hospital, residents at St. Luke's, Roosevelt, and City Hospitals, and at the Hospital for Joint Diseases, where the dermatological services are in charge of members of our staff, come to the Vanderbilt Clinic for training in its special sections. Three students working full-time in our outpatient department and four spending half-time in clinic and half-time in a preceptor's office are included in this group. All these graduate students attend a weekly seminar in general dermatology and courses in histopathology, mycology, and bacteriology given within the Department and also courses in biochemistry, physiology, and the physics of x-ray offered for all residents in affiliated hospitals under the general graduate training program of the School. Emphasis throughout is on supervised experience in the clinic, wards, and laboratories.

It is a happy and unusual experience that the staff which began this undertaking twenty years ago is almost intact. Professors Andrews, Benham, Cannon, Gross, Moon-Adams, Kesten, Machacek, and Robinson, and Doctors Samuel M. Kaufman, Laszlo, Lowenfish, Maechling, and Tryphosa R. Worcester have served since 1926-27. Of our original technicians and nurses, Mrs. Bertha Huntsman and the Misses Florence Palmer, Clara Pierson, and Isabel Wallace are still on active duty. Most of our other staff members have served for fifteen years. Death has claimed some trusted colleagues—Drs. Lawrence K. McCafferty, Hermann Feit, Daniel E. Kuhltau, Vida Sherwood, and Maximilian Horn, and Mrs. Emily Piper, who for many years was our chief nurse. A few of our members have left for service elsewhere and many doctors have spent a few years here in training, but changes in our teaching and technical staff have been few.

We wish we might also express our gratitude to Dean Darrach who initiated our undertaking and encouraged us in different ways, to Dean Rappleye who has generously furthered our work, and to the many colleagues who have loaned us hospital beds and laboratory space and freely given us invaluable aid and counsel.

Experience in World War II served to dramatize and bring to public attention the need for development of dermatology which had long been evident to students of medicine. Little provision had been made by the Army or Navy for prevention and care of diseases of the skin, but they proved a major military problem. The scarcity of qualified dermatologists and lack of basic knowledge on important questions of etiology and treatment were

painfully evident. All this emphasized the need for research in dermatology and for training of specialists. It is to be hoped that support for work in this field may now be obtainable.

Opportunity seems ripe for decisive advance. A new force has come into dermatology in a group of younger men with determination derived from their military experience and with far more knowledge of pathology, bacteriology, physiology, and chemistry than had we who began our efforts years ago. New advances in the basic sciences are rapidly being brought to the aid of clinical investigation. We have in this Department a promising group of these new workers and an experienced staff of great ability. Leadership passes to one who has earned their admiration and confidence, well known in this School as a stimulating teacher and by all dermatologists for his scholarly publications. Progress requires that dermatology be given its due share of facilities not only in the outpatient department but in the Hospital and the Medical School. It requires most of all the building of a group of investigators. This means not only enabling young clinicians with a bent and the ability for research to devote full-time to its pursuit, but planning their future advancement. It means also securing chemists, physiologists, and bacteriologists for work on basic problems. The opportunity is here.

## DEPARTMENT OF MEDICINE

• Professor WALTER W. PALMER, Executive Officer

No important change in teaching in either the third or fourth year has been made during the year. Next year, in addition to Roosevelt Hospital and Mary Imogene Bassett Hospital, ward clerkships will be available at St. Luke's Hospital as the result of the recent affiliation.

From Bellevue Hospital, Professor Dickinson W. Richards, Jr., reports improvement in the conduct of the fourth-year clinical clerkship due to considerable extent to Dr. Richard T. Cathcart's efforts. There is a similar enthusiasm for Professor David M. Spain's conduct of the sessions in pathology. Professor J. Burns Amberson, who is in charge of the Chest Service at Bellevue Hospital, has improved the teaching of the fourth-year students in that they see more patients in the wards, have more individual instruction, and have an opportunity to follow their cases. Eleven members of his staff have taken part in the work. Professor Amberson's service has been of great assistance to Professor Franklin M. Hanger in the teaching of physical diagnosis.

Professor A. Raymond Dochez, Professor Yale Kneeland, and Miss Katharine Mills in the continuation of the study of the common cold realize that further progress in the effort to immunize against this ailment requires

the adaptation of the virus cultivated in embryonated eggs to small laboratory animals and the development of an *in vitro* test for the immunological comparison of different strains of the virus. No small animal has yet been discovered which is satisfactory for the study although an exhaustive search has been carried out. Professor Hanger, in association with Dr. Lillian Recant and Mr. Nicholas Capeci, continued his studies of the mechanism and use of the cephalin flocculation test in the recognition of diseases of the reticulo-endothelial system. He has devised a method of using the cephalin flocculation in the recognition of active liver disorders in the dog. Dr. Charles A. Ragan has confirmed Guerra's work on the inhibition of the spreading factor facet of hyaluronidase.

Dr. Thomas H. Hunter, continuing his work on the chemotherapy of various infections—particularly subacute bacterial endocarditis, has found that excellent results are obtained in resistant types of infection with streptomycin and streptomycin in combination with large doses of penicillin in patients who are refractory to penicillin alone.

Dr. Edward E. Fischel and Professor Elvin Kabat of the Department of Bacteriology have demonstrated that sodium salicylate and pyribenzamine are equally ineffective in preventing the severe local tissue reaction that results when certain antigens unite with corresponding antibodies in animals and in patients.

Professor George A. Perera and Dr. David W. Blood have shown that desoxycorticosterone acetate exerts a more immediate and different type of pressor response in hypertensive as compared to normotensive subjects and that the pressor response of this drug is dependent on the sodium chloride intake, and have confirmed the fact that rigid salt restriction has some blood pressure lowering effect and that large amounts of dietary sodium chloride may elevate the blood pressure.

Members of the Isotope Committee, Professor Randolph West and Dr. Irving M. London from the Department, and Professors David Rittenberg and David Shemin from the Department of Biochemistry, have been engaged in the application of isotope techniques to clinical investigation. These techniques have afforded unique methods for studying the kinetics of human red blood cell formation, the average life span of the human red cell, and the formation of bile pigment. Correlative studies have been performed on the rates of formation and degradation of plasma proteins and of their constituent fractions and on the turnover rate of nitrogen in the nitrogenous components of the urine. The metabolism of uric acid in human subjects has been studied by feeding isotopic glycine which has been shown to be a precursor in the biological synthesis of uric acid.

Professor West, in collaboration with Dr. Joseph W. Jailer, has studied the

effect of the pituitary growth hormone in a pituitary dwarf with prepubertal Simmond's disease. Professor Alexander B. Gutman, in conjunction with Professor Rittenberg, has prepared uric acid containing  $N^{15}$  for comparative studies on excretion of uric acid in normal and gouty subjects.

Professor Michael Heidelberger, assigned to the Department from Biochemistry, with Mrs. Marie M. DiLapi, has continued studies on the prevention of pneumococcal pneumonia, more accurate analysis of human sera, the antibody response being measured after injection of the specific polysaccharides of the six pneumococcus types responsible for about 85 percent of the pneumococcal pneumonias in the United States. Standard preparations of the polysaccharides have been made. With Mr. Manfred Mayer (now Assistant Professor of Bacteriology in the School of Hygiene and Public Health, Johns Hopkins University), Dr. Otto Bier (Director of the Butantan Institute, San Paulo, Brazil), and Mr. Abraham Osler (on leave from the New York City Department of Health Laboratories), Professor Heidelberger has found that complement is doubled in activity by the addition of an optimal but very small quantity of magnesium salts. Studies on the production of antibodies by horses carried out in previous years with Dr. Henry P. Treffers (now Associate Professor of Immunochemistry at Yale University) and Dr. Jules Freund (of the Public Health Research Institute of the New York City Health Department) have been accepted for publication. Professor David Green and the fellows working in the Enzyme Laboratory, Drs. John Taggart, Allan L. Grafflin, Walter E. Knox, Sherman R. Dickman, and William F. Loomis have continued their studies on the reconstruction of the system in rabbit liver and kidney which catalyzes the complete oxidation of pyruvic acid, fatty acids, glutamic acid, and proline to carbon dioxide and water.

Professor Andre Cournand and Dr. Hurley L. Motley, an Assistant Resident on the Bellevue Chest Service, with simultaneous measurements of respiration, intracardiac pressures and cardiac output have defined quite accurately the optimum forms of intermittent positive pressure to use, both in unconscious subjects and in conscious subjects with abnormal pulmonary conditions. Recommendations for the best type of apparatus have been submitted to the Aero Medical Laboratory which supported the work. With Dr. Janet Baldwin of the Pediatrics Division of Bellevue Hospital, a wide variety of congenital heart abnormalities has been analyzed by the catheterization procedures. Dr. Richard L. Riley has developed an indirect method for measuring the oxygen pressure in the alveolar air, as well as an excellent micro method for measuring gas tensions in the arterial blood which provides an important addition to our knowledge of pulmonary physiology. Drs. M. Irene Ferrer and Rejane Harvey have found a sharp drop in arterial blood pressure regularly about an hour after the administration of a moderate dose of quinidine. Drs. Eleanor DeF.

Baldwin and David G. Greene have continued the study of pulmonary function in cases with chronic pulmonary disease and clinically unexplained dyspnea and the cardiocirculatory dynamics using the technique of right heart catheterization.

Professor Robert L. Levy, in collaboration with Drs. Margaret N. Boyle, Rene Wegria, Richard T. Cathcart, and Professor John L. Nickerson of the Department of Physiology, has shown that effects of intravenous nicotine on the circulation exhibit variations in reaction as great in normal persons as in patients with cardiac disorders. With Drs. James A. L. Mathers, Alexander A. Mueller, and Professor Nickerson he found that the effects of cigarette smoking in normal persons on the circulation were slight and no greater in cardiacs than in normals. A few individuals, both with and without heart disease, show unusual susceptibility. Studies of blood pressure in army officers have resulted in suggestions for revising the standards now used in selecting those physically qualified for military service. This work has been done with Drs. Paul D. White, William D. Stroud, and Brigadier General Charles C. Hillman, as joint authors.

Professor John W. Fertig of the School of Public Health and Drs. David Blood and Richard T. Cathcart find no significant changes in clotting and prothrombin times in normal persons and in patients with various diseases who have been receiving drugs. With Dr. Wegria, Professor Levy has made a comparison of the action of commercial quinidine, synthetic quinidine, and dihydroquinidine. Since dihydroquinidine was more toxic it was discarded. Drs. Wegria and Boyle in their studies of the concentration of quinidine in blood plasma in relation to effect on the circus movement in chronic auricular fibrillation have found it is roughly parallel. Dr. Wegria, in collaboration with Drs. Boyle and Katharine Smull, has found that sodium salicylate, always thought to produce an acidosis, produces an alkalosis due to hyperventilation. The therapeutic implication of this finding in cases of aspirin and salicylate poisoning is obvious. With the help of Messrs. David Weaver and Henry Krakauer he has found that aluminum hydroxide relieves the gastrointestinal symptoms due to salicylate without lowering the blood salicylate level, which is the opposite to the effect of sodium bicarbonate. With Professor Nickerson, Mr. Robert B. Case, and Mr. James F. Holland, respectively third- and fourth-year students, Dr. Wegria studied the effect of nitroglycerine on the heart rate, blood pressure, and cardiac output of normal persons. The probable mechanism by which nitroglycerine increases the work of the heart constitutes a definite contraindication to the use of the drug in recent coronary occlusions. A resume of this study was presented by Mr. Case at the Medical Society of the Columbia-Presbyterian Medical Center.

Professor Alvan L. Barach, in association with Drs. Bettina Garthwaite and



Hylan A. Bickerman, finds penicillin aerosol administered in conjunction with intermittent negative pressure of clinical value in bronchiectasis, sinusitis, lung abscess, and pneumonitis due to highly resistant staphylococcus aureus.

Dr. Sidney C. Werner in his studies on nutrition in the injured patient, has shown that an increase in protein intake will compensate for the tendency to lose nitrogen which results from reduction in calories. In collaboration with Professor Edith H. Quimby, Dr. Werner, employing twelve-day half-life iodine, finds that an uptake of more than forty percent of the radioactive iodine is diagnostic of toxic goiter, and a dosage of four millicuries results in about a ninety percent cure in these patients. Dr. Henry Aranow, Jr., has administered 6-propyl-thiouracil to more than sixty-five patients with thyrotoxicosis without significant toxic reactions, and the disease has been controlled in all but one patient.

Professor Joseph C. Turner, in association with Miss Barbara Mulliken, has shown that vaccinia virus readily infects sarcoma 180 of mice and produces a retardation of growth of this tumor. This action of virus on tumor may represent a competitive antagonism. With Professor Titus C. Evans of the Department of Radiology and Mr. Nathaniel J. Ehrenkranz, a student from the Yale Medical School, he has shown that rabbit polymorphonuclear cells labeled with radioactive phosphorus ( $P_{32}$ ) disappear from the circulation in a matter of minutes and probably are destroyed in the liver and spleen.

Professor Stanley E. Bradley, in collaboration with Drs. Geraldine Bradley and Neal J. Conan, Jr., has examined hepatic function in terms of hepatic circulatory dynamics and hepatic cellular activity during the pyrogenic reaction, during the action of decholin and relative anoxemia, and during hepatic cirrhosis. Dr. Stuart W. Cosgriff with Dr. Richard J. Cross has studied and treated cases of thrombo-embolism, coronary thrombosis, and vascular surgery. The main method of treatment has been the use of anticoagulant drugs, heparin, and dicumarol.

Professor Robert C. Darling in the study of exercise metabolism during simple convalescence finds measurable differences, high pulmonary ventilation, and high resting lactate regularly on first day of ambulation. Vasomotor stability and equilibratory sense seemed to be affected more than the variables measured. In collaboration with Dr. Clarence J. D'Alton measurements of insensible and sensible perspiration of entire body during congestive heart failure were made.

Drs. William H. Sheldon and C. Wesley Dupertuis have organized a Constitutional Research Laboratory; their major enterprise during the present year being the completion of Dr. Sheldon's ten-year study of two hundred delinquent boys of Boston.

Professor George E. Daniels of the Department of Psychiatry and associates

—Drs. Edward S. Tauber, Ruth Moulton, Kenneth Kelley, Viola Bernard, Sadie Zaidens and Professor Daniel E. Ziskin of the Dental School—are studying the psychiatric aspects of several pathological conditions, i.e., castration, eunuchoidism, sterility, dermatitis, exoriations, and gloddodynia.

From the Chest Service at Bellevue Hospital Professor J. Burns Amberson reports that Professor David M. Spain has a number of studies under way, including a report on pulmonary changes in scleroderma, observations on cor pulmonale in tuberculous patients who have thoracoplasty, and a study of the time element in the development of bronchiectasis. Professor Amberson with Dr. William H. Stearns is studying the effects of streptomycin on the various manifestations of tuberculosis. With Dr. Ursula J. Roche he is continuing the study of the behavior and ultimate fate of tuberculous lesions developing in nurses.

From Goldwater Memorial Hospital Professor David Seegal reports that Professor Arthur J. Patek has continued his study of cirrhosis of the liver, observing the effects of methionine and intravenous liver extract. With Dr. Alice Lowell and Dr. Harold Mankin he finds that the formation of ascites may involve other factors than osmotic and portal pressure. Professor Forrest E. Kendall and Dr. Alfred Steiner have shown that intimal atherosclerosis and arteriosclerosis can be produced in dogs by the long-continued feeding of cholesterol together with large doses of thiouracil. These lesions are similar in distribution and morphology to those seen in human arteriosclerosis. Professor Kendall has succeeded in producing atherosclerotic lesions in the rabbit by the intravenous injection of colloidal cholesterol suspensions. Dr. Lowell has developed a small visual comparator for the rapid determination of blood volume. Dr. Henry Colcher has found that through the use of a transparent rubber balloon attached to the lower end of the gastroscope a more complete examination of the stomach is possible.

Professor Michael Heidelberger was invited by the National Union of Intellectuals of France and the French Government to deliver an address on Immunity at an International gathering in Paris to commemorate, in December, 1946, the fiftieth anniversary of the death of Pasteur. He received the honorary degree of Doctor of Science from the University of Bordeaux. He was elected President of the American Association of Immunologists. Professor Stanley E. Bradley received the Gibbs Award given by the New York Academy of Medicine. Professor Andre Cournand was awarded the Andreas Retzius Silver Medal of the Swedish Society of Internal Medicine and the Pasteur Institute Medal. While abroad he gave a series of lectures in France, Sweden, and England. Professor Edgar M. Medlar serves as a Consultant in the New York State Tuberculosis Hospitals and has given invaluable service there. Professor J. Burns Amberson and Dr. William H. Stearns are

members of the Tuberculosis Committee of the Division of Medical Sciences of the National Research Council and Professors Medlar and Amberson are members of the Tuberculosis Therapy Group of the Research Grants Division of the United States Public Health Service. Professor Amberson serves as a Consultant at the Veterans Administration Hospital in the Bronx, the New York Tuberculosis Hospitals, and the Workmen's Compensation Board of the New York State Department of Labor.

Changes in the staff as of July 1, 1947, were as follows: Dr. Dickinson W. Richards, Jr., became Lambert Professor of Medicine; Drs. Franklin M. Hanger, Jr., and Randolph West were promoted from Associate Professors to Professors; Dr. Yale Kneeland, Jr., from Assistant Professor to Associate Professor; Drs. Walter P. Anderton, Morris Dinnerstein, Edmund R. P. Janvrin, and Martin deF. Smith from Assistant Clinical Professors to Associate Professors; and Dr. George A. Perera from Associate Professor to Assistant Professor. Dr. Arthur J. Patek's rank was changed from Assistant Professor to Assistant Clinical Professor. Professor Joseph Victor resigned to accept a position as chief of the Pathology Branch, Basic Science Division, Research and Development Project, Camp Detrick Frederick, Maryland, and Professor Margaret Bevans was appointed to take his place as Experimental Pathologist on the Research Division, Goldwater Memorial Hospital. Professor William P. Thompson resigned. Professor Helen Gavin retired after serving for a period of twenty-five years on the Chest Service at Bellevue Hospital.

Professor Palmer received the honorary degree of Doctor of Sciences from Princeton University. He has been elected President of the American College of Physicians for 1948. On July 1, 1947, he becomes Director of the Public Health Research Institute of New York. Professor Robert F. Loeb was elected a Trustee of the Rockefeller Foundation; he was Chairman of the Medical Board of Review of the Atomic Energy Commission. On July 1, 1947, Professor Loeb, as Bard Professor of Medicine, assumes the responsibilities of Executive Officer of the Department of Medicine and will become Director of the Medical Service of the Presbyterian Hospital.

#### PHYSICAL THERAPY

During the academic year the first year of a two-year program leading to the Bachelor of Science degree or to the Certificate (according to prerequisites offered by the candidates) was offered.

Thirty-nine students entered in September, 1946. Twelve of these were registered for the first year of the new two-year program leading to the Bachelor's degree or to the completion of the requirements for the Certificate of Training (with credits which may be allocated to a Bachelor's degree

elsewhere). Twenty-seven students entered the program for the one-year Certificate course.

The students of the class of 1946-1947 are to be commended for their spirit. It is through their interest and effort *The Synergist* (the student, staff, and alumni "newspaper") has evolved.

#### OCCUPATIONAL THERAPY

A total of seventy-four students were enrolled during the academic year. These students were drawn from twenty states and Puerto Rico and had prepared in sixty-four colleges and universities.

Upon recommendation of the Office of University Admissions, the responsibility for admissions to the physical and occupational therapy programs was transferred to the College of Physicians and Surgeons. Admissions procedure has been worked out in accordance with the policies of the Medical School, which enables us to continue to maintain the high standards developed during the past several years of the existence of our program.

The principal shift in any individual course has been in abnormal psychology. This year the course moved from the Columbia University Department of Psychology to the Medical School with a new instructor from the Neurological Institute. This has enabled us to provide an offering with better emphasis upon clinical aspects.

The arrangement with Teachers College providing for use of their workshops in the teaching of certain occupational therapy techniques and modalities continues to be highly satisfactory. We are appreciative of the cooperation and interest shown in working out complicated schedules, demanding of space and instructors. The heaviest load is shouldered by the Department of Fine and Industrial Arts.

This year twenty-five hospitals and agencies have participated in the teaching program, each representing a center with adequate clinical facilities for sound student training under supervision of registereed occupational therapists. We wish to make special mention of the cooperation given by Mrs. Elizabeth Jameson, Chief Occupational Therapist, Columbia-Presbyterian Medical Center, and her staff in making possible close working relationships for students between the College and the hospitals of the Medical Center.

Personnel changes have been slight. Our principal concern has been a certain lack of personnel—there has been no associate director of training courses on the administrative staff in the Department during the spring session. It is anticipated that our staff will be complete by late summer as we enter the next academic year.

This year the Columbia University Occupational Therapy Alumni Asso-

ciation was organized. The 157 graduates have adopted a constitution, elected officers, and applied to the University Alumni Federation for unit membership. The first issue of the Occupational Therapy Alumni Newsletter was published in January, 1947.

The continuous demand for qualified occupational therapists still far exceeds the numbers available. Distribution of placement of graduates, practicing in nine states, includes civilian and Veterans Administration hospitals and agencies in the specialized fields of cerebral palsy, psychiatry, pediatrics, tuberculosis, and orthopedics.

## DEPARTMENT OF NEUROLOGY

Professor EDWIN G. ZABRISKIE, Acting Executive Officer

During the year just finished, the Department has undergone important changes through the separation of neurological surgery from neurological medicine and the establishment of two separate Departments within the College and the Neurological Institute—thanks to the splendid coöperation of the staffs of both services, for which the Acting Director makes grateful acknowledgment.

The undergraduate teaching has proceeded without any significant changes. The success is in no small part due to the outstanding help and coöperation furnished by Professor H. Houston Merritt and his staff at Montefiore Hospital. Courses for Army medical officers have been abandoned, but the Department is coöperating with the Department of Psychiatry in giving courses in neuropsychiatry to residents of state hospitals. One of these is a special course for veterans, and the other a regular postgraduate course for residents of state hospitals and other physicians who may wish to participate. The course for informal training in clinical neurology and its basic sciences for the benefit of veterans and foreign students conducted by Professor Hans Hoff has continued to be one of the most successful features of postgraduate teaching of the Department.

Professor Frederick A. Mettler has published a study on the origin and destination of the fibers running from the primate thalamus to the cortex and also one on the fibers leaving the primate thalamus. With Professor Leo M. Davidoff, he has published a study of alternating tremor after complete dysfunction of one half of the human brain. He has also published (in conjunction with Professors Merritt and Tracy J. Putnam) the text, *Clinical Neurology*, and has presented a demonstration before the American Association of Anatomists of a procedure which results in the retention of superimposed postures. He has completed a second edition of his neuro-

anatomy and has edited the late Dr. Cecilia C. Mettler's *History of Medicine*. Professor Mettler has currently been engaged in the study of the syndrome of the superior cerebellar peduncle and in the conduction of the Columbia-Greystone project in psychosurgery. Collaborating on this project are Drs. J. Lawrence Pool and Robert G. Heath, Professors Edmund P. Fowler, Jr., DeGraaf Woodman, Abner Wolf, and David Cowen. This project represents a peacetime application of the methods of coöperative research to a field of clinical medicine. With Dr. Raul M. E. Carrea, Professor Mettler has completed a study of the origin of the climbing fibers of the cerebellum and a comprehensive experimental research upon cerebellar function.

Professor Paul F. A. Hoefer with several associates is continuing his studies in clinical neurophysiology. A report on seizures in patients with brain tumor was prepared in coöperation with Drs. Edward B. Schlesinger and Harry H. Pennes. An investigation with Professor Hoff and Dr. Roger J. Pluvineau on the effect of anticonvulsant therapy on the electroencephalogram of patients with genuine epilepsy lead to another on the significance of the so-called paroxysmal electrical patterns for the actual clinical seizures. A review on the electroencephalogram in psychiatry is in preparation. The electronic analyzer for the electroencephalogram was completed. Direct recording of action potentials from the exposed human central nervous system has been started in the operating room in coöperation with Professor John E. Scarff. Dr. Pennes has obtained significant new data concerning the temperature distribution in striated human muscle in normal subjects and in patients suffering from spastic hemiplegia and Parkinson's disease.

The investigations of Dr. Harry Grundfest on the peripheral nerve injury have been so successful that the government contract has been renewed and plans are under way through coöperation with the Veteran's Administration to establish at the Columbia-Presbyterian Medical Center one of the five centers that have been established throughout the country for follow-up and experimental studies on peripheral nerve injuries. In reality this will be a further development of the research in the complex correlation of chemical and electrical activity in nerve and muscle that has been carried on with the coöperation of Drs. David D. N. Nachmansohn, Theodore Bullock, and Mortimer A. Rothenberg and has resulted in a better understanding of the part played by acetylcholine-cholinesterase in inhibiting electrical activity. A review of bio-electric potentials in nerve and muscle has been published in the *Annual Review of Physiology*.

Dr. Nachmansohn has continued his studies of the enzyme cholinesterase; its capacity to inactivate acetylcholine and compounds that can inhibit cholinesterase. A new compound that inhibits this enzyme has been discovered and new light has been thrown on the difference of drug effects on

axonal conduction and synaptic transmission. During the work on choline acetylase an active coenzyme has been found that has possibilities which exceed glutamic acid.

Professor Otto Marburg has continued his work on the *Atlas of Neuro-pathology* and upon the role of the adrenal in epilepsy. He has completed a paper on lipodystrophia, another on heredodegenerative diseases, also a review of the records of one hundred epileptics, and a study on the connections of the super colicili.

The curare research project under Dr. Edward B. Schlesinger has continued its exploration of the usefulness of pharmacological agents in the treatment of muscle spasm, spasticity, and various other neuromuscular disorders, enlarging its series to 500 treated cases. Curare has proven useful in eliciting the neurophysiological entities which contribute to the deformities in acute arthritis and in cerebral palsy. These studies formed the basis of the Walter Suitor Lecture of the annual meeting of the New York State Medical Society. The coördination of our studies with the facilities available at the Institute for the Crippled and Disabled will enlarge our investigative opportunities in a gratifying manner.

Professor Elvin A. Kabat has continued his outstanding investigations into the production of disseminated encephalomyelitis by injection of specific proteins and has just completed a study of gamma globulin in the spinal fluid which will probably constitute an important diagnostic aid for multiple sclerosis.

In addition, the following research projects are being conducted: Dr. Lewis J. Doshay, in association with Dr. Joseph F. Zigarelli, has completed his study of therapeusis in parkinsonism, and with Dr. Alfred Gallinek has continued the study of electroshock in aged patients; Dr. John S. Lynn, IV, has begun preliminary work on the use of small electrodes in electroshock and also upon a focused wave generator which he expects to use in the transcranial production of brain lesions, and the study of physiologic effects of transcranial stimulation. Dr. Abraham Mosovich continues his study of electroencephalographic classification in epilepsy; Dr. Roger J. Pluvinage has completed a study of cerebellar aneurysm; and Dr. Guzman, a study of the effects of temporal lobectomy and also of the consequences of lesions of the substantia nigra. Professor Henry A. Riley continues work on his cytologic atlas of the neuraxis. Dr. Frederick Zimmerman has completed a study on the effects of the application of graded force to the cortex and on the effect of glutamic acid. He continues the study of the personality factors in convulsive disorders and on the connections of the interpeduncular nucleus.

Dr. J. Lawrence Pool is studying the application of intravital staining procedures to the detection of neurone fatigue and has contributed several sec-

tions to various monographs. Dr. Pool with Professor Scarff has been engaged in the study of the physiologic phenomena of spinal cord transections. Professor Merritt continues his studies on the action of anti-convulsant drugs and the effects of experimental cortical scarring.

Dr. Ernest Herz is engaged in follow-up studies of the surgical treatment of parkinsonism and in the analysis of various forms of tremor and disorders of coördination. He has completed a study on torticollis and hyperhidrosis. Dr. Fritz Cramer is engaged in the surgical treatment of syringopontia and syringobulbia. He has completed a study of blast concussion and is working on neuralgia of the seventh and tenth cranial nerves. Dr. Albert A. Rosner has been engaged in the study of the treatment of parkinsonism; also in psychiatric voice recording and in the use of electroshock as a suppressive treatment.

Dr. Moses J. Madonick has been engaged in the study of the sugar content of the spinal fluid in head injury, of conjugate gage after head injury, and of diabetes mellitus in Schilder's disease. Dr. John R. Whittier has been able to produce a variety of abnormal movements by surgical lesions in monkeys; Dr. Thomas J. Bridges, Jr., has been working on the production of persistent pain; Dr. Antonio Grino in a research upon the histo-chemistry of the glia and in the use of contrast media in cerebroentgenology; Dr. Leo M. Davidoff is engaged in the study of regeneration within the spinal cord; Dr. Murray Glusman has finished the study of nutritional retrobulbar neuritis; and Dr. Saul R. Korey is engaged in the study of localizing of lead in the body.

Professor Tracy J. Putnam and his co-workers (Drs. Ludwig V. Chiavacci, Hyman G. Weitzen and Hans Hoff) have made definite contributions in the study of the multiple sclerosis; Dr. Jerry C. Price on the effect of new drugs on epilepsy; and Professor Putnam and Dr. Frederick Zimmerman on the effect of glutamic acid on the I.Q. of defective children.

There is a vast field for research in clinical neurology as yet unexplored. The reason for this lies in the lack of sufficient full-time personnel who, under the direction of the Executive Officer, could coördinate the efforts of those of the Attending Staff who might be interested but unable to devote more than a part of their available time for research.

The possibilities of such a plan are great and may reach great magnitude. One should think only in these terms when considering research that would embrace many possible questions of etiology, physiology, biophysics, etc. It should not interfere with less extensive individual problems that appeal to single workers. There is no doubt of the wisdom of such a plan as has been amply demonstrated in the Greystone project conceived and organized by Professor Mettler. In this project the services of eighty persons have been utilized, and it seems certain that its outcome upon final evaluation will have a profound effect on our previous conceptions of neurology and the basic sciences.



## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

The completion of the two new wings on Maxwell Hall has made the housing of all student nurses, including those affiliating from other schools. The library facilities are now adequate and attractive, with space for 3,600 books and for sixty-four readers. The reception rooms and other features add to the attractiveness of the nurses' residence, and the fifteen new apartments provided for the teaching staff represent a new era in institutional housing.

Since it is now a little over a year since the inauguration of the Outpatient Nursing Service, it is possible to report that the project has been most successful. The student, seeing the home and community environment of the patient she has known in the hospital, has learned realistically the full meaning of health and the social aspects of nursing. From July 1, 1946, to May 31, 1947, ninety students were assigned to the Outpatient Nursing Service, caring for 326 patients and making 2,222 home visits. In September, 1946, arrangements were made for each student to spend one entire day observing the visiting nurse in the field. Both projects are providing valuable and essential experiences in the education of the student.

One hundred and thirteen graduates took the State examination for licensure to practice nursing in New York State, and there were no failures. No report has as yet been received for the group taking the examination in June.

At the Commencement exercises of Columbia University on June 5, 1947, seventy-eight students received the Bachelor of Science degree in the nursing course. The class of 1947, which graduated in the Hospital Garden on June 7, 1947, numbered ninety-two students, of whom sixty-two were degree candidates.

The Dean Sage Memorial Scholarship was awarded to Miss Audrey Kimball. This is the first award of the scholarship which provides all tuition and University fees for a degree candidate.

The Congress of the International Council of Nurses was held in Atlantic City May 12-16, 1947. It was the first Congress since 1937 and was attended by over six hundred representatives of thirty-one foreign countries with a total registration of 6,592. The president of our senior and junior classes attended for two days. Over forty members of the graduate staff were there for various lengths of time.

The nursing service of the Hospital is again receiving essential aid during the summer from the premedical students, known as "ward assistants." The coöperation of the University in recruiting this group and permitting their housing in Bard Hall is greatly appreciated.

Professor Eleanor Lee made an interesting tour of southern colleges and

university schools of nursing during her leave of absence in the spring term.

In the death of Miss Helen Wood, Instructor in Nursing at the Babies Hospital, the Department of Nursing suffered a severe loss. Miss Wood was an inspiring teacher, a skillful nurse and a loyal and devoted member of the nursing staff. She died on August 6, 1946. Her family has established a memorial fund to be used for the purchase of books on pediatrics for the Maxwell Hall Library.

Other changes in the teaching staff include the following: Miss Marjorie Peto was appointed Assistant Professor to succeed Miss Winfred Kaltenbach, resigned; Miss Louisa M. Kent was appointed to succeed Miss Wood, and Miss Katherine Burnett replaced Miss Kent; Miss Mary Edna Fitzpatrick was appointed Instructor in Nursing to succeed Miss Ann Kirchner, who resigned to become Director of Nursing at the Chicago Lying-In Hospital; Miss Harriet Benedict was appointed Instructor in Nursing; Mrs. Helen Delabarre succeeded Mrs. Dorothy Nayer, resigned, in the senior position; Miss Ruth Lynch was appointed Instructor in Nursing to succeed Miss Alice Hamilton, resigned; Miss Jane S. Wyatt was appointed Instructor in Nursing to succeed Miss Florence Barends who resigned to become an Assistant Director in the Administrative Nursing Office; Miss Mary Tirrell was appointed Instructor in Nursing to succeed Miss Catherine Mulcahy, resigned; Miss Marionelise Hyeas was appointed Instructor in Nursing to succeed Miss Esther M. Oliver, who resigned to take a position in the American Hospital in Beirut, Syria.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor HOWARD C. TAYLOR, JR., Executive Officer

The work of the year has been directed toward reorganization with the particular objective of furthering the research activities of the Department. With this in view the residency program has been altered in order to allow four men who have completed a first period of assistant residency to spend a full year devoted largely to the pre-clinical and investigative aspects of their subjects. This will allow the selection of future residents to be based on the observation of the candidates' ability both in the clinical and in the more academic aspects of obstetrics and gynecology.

The actual research program is progressing in four specific fields. The physiology of conception and fertility is being studied in collaboration with Professor Earl T. Engle of the Department of Anatomy. Dr. Charles Lee Buxton is working through the endocrine clinic in several problems, notably the function of the corpus luteum in relation to abnormal menstrual cycles and the use of basal body temperature to determine ovulation time. The

chemistry of the former study is being handled by Professor Louis Levin of the Department of Anatomy.

In this field also Dr. Landrum Shettles, a Doctor of Philosophy as well as a Doctor of Medicine, recently appointed Assistant Resident, is studying the chemistry of the cervical mucus.

A broad program for research in the reproductive physiology of patients having gynecological tumors has been prepared in collaboration with Professor Engle which is supported by a grant from the American Cancer Society on the recommendation of the Committee on Growth of the National Research Council. The work under the grant will begin on July 1, 1947, being carried out by the two departments under the direction of Professors Taylor and Engle with the collaboration of Drs. Joseph W. Jailer, Saul B. Gusberg, and others.

During the last year Dr. Gusberg has also completed a pathological study of the pre-cancerous lesions of the endometrium which is now awaiting publication.

With the assistance of Professor Samuel Graff, the biochemist of the Department of Obstetrics and Gynecology, a program is being prepared relating to the physiology of pregnancy and causation of toxemia. This will be particularly concerned with fluid balance and the renal excretion of electrolytes and the study of an alleged toxic agent affecting clotting time. Coöperating with Professor Graff will be Drs. Joseph W. Jailer and Byron Butler.

The relation of pelvic size and shape to the outcome of labor has been the successful study of this Department for many years. The character and strength of the uterine contractions have remained unmeasured factors but have been recognized as important. Investigation of this subject has been begun by Dr. Charles M. Steer in collaboration with Mr. George J. Hertsch, electrical engineer. Work has been in progress for about four months in an attempt to measure the amplitude of the uterine contractions as well as the electrical currents set up by the contracting musculature.

With the Department of Pediatrics studies are being made of the effect of substitution transfusions on babies with Rh incompatibility and on the effects of virus diseases early in pregnancy.

The future progress of the Department in a scientific direction seems promising on account of the acceptance of several assistant residents with excellent previous training, and the appointment of three new instructors with research experience: Drs. Equinn W. Munnell, Joseph W. Jailer, and Harold Speert.

## DEPARTMENT OF OPHTHALMOLOGY

Professor JOHN H. DUNNINGTON, Executive Officer

During the past year the Department has resumed its normal activities. The staff has remained the same as it was last year except for the resignations of Instructors John S. McGavic and Edward Gallardo and the return of Instructors J. Vincent Flack and Donald E. Tinkess. No appreciable change has occurred in undergraduate teaching but increased interest in postgraduate instruction has become manifest. We have been besieged with numerous requests for such instruction and regret that owing to the shortage of space and of clinical material it has been impossible for us to accept this responsibility. An intensive four-month course in the basic sciences has been given to our residents and those affiliated institutions. The pathological conferences as presented by the resident staff have been a highlight both for the interest they have aroused and for the excellence of presentation.

Research activities have been increased, largely through the creation of a radio-therapy division under the direction of Professor Algernon B. Reese, assisted by Dr. George R. Merriam, Jr. They are studying the effects of radiation on retinoblastoma and allied conditions. This work is a continuation of investigations started several years ago by Professor Reese in conjunction with Dr. Hayes Martin at the Memorial Hospital. The transference of these activities to the Institute of Ophthalmology was made possible by a generous donation from Mr. Charles B. Wrightsman for the creation of a retinoblastoma fund. Its support is also in part financed by a grant from the Snyder Ophthalmic Fund.

Professor Ludwig von Sallman has continued his studies on the absorption from the vitreous, but has devoted a great deal of his time to investigating the effect of diisopropyl-fluorophosphate (D.F.P.) on the capillaries of the anterior segment of the eye. The significance of these studies on the actions of this new and powerful miotic is evident from the increasing importance of this drug in the treatment of glaucoma. In collaboration with Dr. Raymond C. Collins experimental work has also been conducted on the allergic etiology of sympathetic ophthalmia.

Professor Karl Meyer in collaboration with the Departments of Medicine and Surgery has continued his studies on the mucopolysaccharides, especially amyloid carbohydrate and heparin.

Professor George K. Smelser of the Department of Anatomy in his studies on the growth and regeneration of the corneal epithelium has reported on the influence of the basal metabolic rate (high and low) on wound healing and mitosis in the cornea. Among other subjects he is investigating are: the distribution of phosphatase enzymes in regenerating epithelium; the effect on

healing of the pH and ionic composition of solutions applied to the injured eye; and the influence on healing rate of addition of carbohydrate substrates, single and amino acids, amino and mixtures, protein hydrolysates and whole blood to aqueous solution applied to corneal burns.

Professor Alson E. Braley has resumed his studies on viruses as a possible cause of certain eye diseases. His preliminary reports indicate that he has isolated a hitherto undescribed virus in some cases of superficial keratitis and that he has found a potent virus present in two cases of pseudo-tumor of the orbit.

Professor LeGrand Hardy and Drs. Gertrude Rand and Catherine Rittler, co-workers in the Knapp Memorial Laboratory of Physiological Optics, have produced a simple screening test for color vision. This test, which has the official acceptance of the Inter-Society Color Council, is now available for routine use. In addition to continuing their studies on color defects they are investigating the disturbance in light adaptation following the administration of tridione in the treatment of petit mal seizures in epilepsy.

The members of the Department have taken an active interest in ophthalmological societies, both local and national. Professors Dunnington and Reese are members of the American Board of Ophthalmology. Professor Reese delivered the DeSchweinitz lecture before the College of Physicians of Philadelphia. Five papers were presented by members of the clinical staff at the recent meeting of the American Ophthalmological Society. Before the Association for Research in Ophthalmology three contributions were given by our research workers. During the past year there were twenty-five publications by the members of this Department.

## DEPARTMENT OF ORTHOPEDIC SURGERY

Professor ALAN DeFOREST SMITH, Executive Officer

The Department suffered a great loss in the untimely death of Dr. Clay Ray Murray on June 14, 1947. Dr. Murray was on the staff of the Fracture Service from its beginning in 1928 and succeeded Dr. Darrach as Head of the Service in 1945, at which time he also was appointed Professor of Orthopedic Surgery. His indefatigable zeal, his complete devotion to his work and his great qualities of leadership were important factors in bringing the Service to its present widely recognized eminence. Professor Murray was largely instrumental in establishing the present-day standards of fracture surgery and wrote many articles on the subject in journals and textbooks.

The resignation of Professor Barbara B. Stimson from the Department on June 30, 1947, is deeply regretted. Dr. Stimson also was one of the original

members of the Service and contributed greatly to its development. She will head a fracture service at the Vassar Brothers' Hospital in Poughkeepsie, New York.

Dr. Frederick L. Liebolt, who was an Instructor in Orthopedic Surgery and an Associate Attending Surgeon at the New York Orthopaedic Hospital prior to his service in the Army, has resigned to accept an appointment as Associate Professor of Orthopedic Surgery at Cornell University Medical College and as Chief of the newly constituted Orthopedic Service at the New York Hospital. Dr. Walter A. L. Thompson, also an Instructor in Orthopedic Surgery and an Associate Attending Surgeon at the New York Orthopaedic Hospital, has resigned to carry on private practice in Connecticut.

The absence of any facilities for study in Europe has placed the entire burden of graduate medical education on the United States and as a result many applications have been received in this Department for opportunities to do graduate work in orthopaedics. Some of these men have come as visiting scholars and others have desired a more formal training as fellows. Orthopedic surgeons from Egypt, India, Switzerland, China, Iceland, and various South American countries have applied for these fellowships. It is our belief that insofar as we can, we should offer our facilities to these men, without depriving our own veterans of opportunities to qualify in orthopedic surgery. The Annie C. Kane Fellowship Fund is available for a limited number of these foreign students per year. So far this year fellowships have been awarded to a Chinese and an Icelandic orthopedic surgeon.

Professor C. Zent Garber and Dr. Leonard F. Bush, an Annie C. Kane Fellow at the New York Orthopaedic Hospital, carried on a series of experiments in the use of homogenous bone grafts in rabbits. The study also included the use of these grafts in human patients and the preservation of bone at low temperatures. It is intended to continue the investigation using dogs as the experimental animals.

The development of a bone bank from which bone is available for various operations has made possible many orthopedic procedures which otherwise would have been very difficult and it is anticipated that its further perfection will be of great importance.

The following clinical investigations are under way by various members of the staff: a study of the growth disturbances in the lower extremities; an analysis of the results of operations for the correction of weak feet; a study of polycystic fibrous dysplasia; a study of the late cases of herniation of the nucleus puposis; a statistical study of the results in cases of bone and joint tuberculosis; an end-result study of the fractures of the lateral condyle of the humerus; internal derangements of the knee joint; indications and contra-indications for arthroplasty and arthrodesis of the hip joint.

On the Fracture Service the following clinical investigations are being carried out: buried removable sutures in major tendon repair, adjustable pin apparatus for hip fracture fixation; articular replacement in human hips; Monteggia fractures, pin traction in elbow and upper arm injuries; clinical investigation of low back pain; use of intramedullary pin fixation in repair of femoral fractures.

The following laboratory investigations also are under way: extension of artificial matrix studies; extension of articular replacement studies in dogs; ballistocardiographic table for cardiac output studies in major operations; studies in the use of buffered solutions in decalcification under conditions of constant temperature, negative pressure and agitation; studies in phosphatase effect in bone healing, surface potential studies in peripheral nerve injury.

The New York Orthopaedic Hospital, because of the fact that it is a very recent member of the family at the Medical Center, has no laboratory facilities in the University for research. This will make impossible any additional experimental research until such facilities are made available (which it is hoped may be in the not too distant future). The affiliation of the Institute for Crippled and Disabled with the University is an important event, particularly to the New York Orthopaedic Hospital. It will make possible the rehabilitation of many of our patients and will afford the means for teaching this important phase of orthopedic treatment. Dr. Frank E. Stinchfield of the Department of Orthopedic Surgery has been made Medical Director of the Institute.

## DEPARTMENT OF OTOLARYNGOLOGY

Professor JOHN D. KERNAN, Executive Officer

Considering that forty to sixty percent of general practice and pediatrics has to do with the ear, nose, and throat, the time allotted for undergraduate teaching in the Department is not sufficient. It is difficult and at times impossible to let every student see even the common diseases of the ear, nose, and throat in a two-week period. All that can be done is to teach the student accuracy of examination, hearing tests, bronchoscopy, and vestibular tests, and to demonstrate common conditions and procedures, such as the removal of impacted cerumen, irrigation of antra, removal of polyps, and the like.

The basic science course for graduate students and residents has been given from January to July this year by Professors DeGraaf Woodman, George R. Brighton, Franz Altmann, and Edmund P. Fowler, and Drs. Daniel C. Baker and Arthur J. Cracovaner.

The Hearing Clinic has been greatly developed. The indications for the fenestration operation, done for the relief of deafness caused by otosclerosis,

have been firmly established. The operation itself is now carried out by a technique nowhere excelled and the residents are well instructed in the procedures. A colored motion picture for demonstration purposes has been made. In this clinic a section of audiology has been established. Special efforts have been made to detect and treat early deafness in children, since it is now realized that most cases of deafness in adults begin in childhood. Frequent use is made of applications of radium to the nasopharynx. This is the accepted treatment for aero-otitis in aviators.

We are extending our experiments on bone growth from the application of cold water. We reported in 1942 that instillation of cold water into one ear of a guinea pig produced growth of bone in the middle ear.

We have continued our experiments on the closure of simulated otosclerosis fistulae in monkeys in an effort to see if the oxidized cotton, developed by Professor Virginia K. Frantz of the Department of Surgery, would keep the fistula open, and have projected our original experiments reported in 1938-1939.

Professor Franz Altmann and Dr. Jules S. Waltner have continued with their experiments on the fundamental physiology and anatomy of the labyrinth especially the endolymphatic and perilymphatic systems. Professor Waltner is also studying the origin of the corpora amylacea to arachnoidal cell clusters which are recognizable in fetuses. These bodies are to be considered a normal anatomical feature of the cochlear aqueduct. He is also carrying on anatomical investigation to clarify the limitations of x-ray studies in relationship to the chronic diseases of the middle ear cavities.

In 1928 a laboratory for the sectioning of temporal bones was established in the College of Physicians and Surgeons with grants from what was then called the Hayden-Coakley Fund and a grant from the Research Council of the American Otological Society. Since that time the Otological Research Laboratory has grown so that it is believed to be one of the best in the world. The collection contains more than five hundred pairs, representing 350 human ears and the ears of 150 animals and birds; a fine collection for the study of the histology and pathology of the nose, throat, and larynx. These specimens have been used not only for the teaching of residents and medical students but as the basis for a series of nearly one hundred medical articles from the Department.

The work of the laboratory was considerably curtailed during the war but during the past year all prewar activities have been resumed. The work has been considerably helped by grants of the Merck and Company, the Hayden-Coakley Fund and the Research Council of the American Otological Society.

Professor Edmund P. Fowler has studied intensively the effect of streptomycin upon the otic mechanism and is making preliminary experiments on the physiology of the nose.



Professor Altman's research work has been reported in a series of publications, including two papers read in Mexico City at the invitation of the Mexican Otolaryngological Society.

Professor Woodman has prepared two instruction films, one on fenestration and the other on his new operation, arytenoidectomy for bilateral abductor paralysis. Dr. Jules Waltner has continued his experiments on the fundamental physiology and anatomy of the endolymphatic and perilymphatic systems.

Under the direction of Professor Harry Neivert the work on hemorrhages has been continued in the pharyngological laboratory with special reference to the influence of Vitamin C and K in these conditions. Five papers have been published which have been so favorably received that Professor Neivert has been granted the degrees of Master and Doctor of Medical Science from the University of Pennsylvania. At present, work is being done on a new antihistamine drug for the relief of allergic conditions of the nose, and also on a new method of using penicillin which may be a valuable aid in the treatment of chronic infections.

## DEPARTMENT OF PATHOLOGY

Professor HARRY P. SMITH, Executive Officer

The past year has seen steady progress in the reorganization of the Department. The teaching collection of slides and specimens has been augmented and organized in conjunction with clinical data from the same cases and from similar cases. A number of projection booths have been built in a room adjacent to the main teaching laboratory, thus permitting extensive use of colored lantern slides with typewritten legends. Mimeographed notes have helped to effect a complete integration of clinical medicine with the basic sciences. These innovations have made it possible to dispense largely with formal lectures and to substitute informal demonstrations and seminars.

In making new appointments to the staff, it is recognized that the Department is a training center, with real concern for the opportunities afforded to young men at the beginning of their careers. These men have had complete medical training, but it is felt that the ones who are looking forward to careers in academic medicine should acquire additional training in physics, chemistry, mathematics, and general biology comparable to the training acquired by those anatomists, biochemists, and physiologists who receive their training mainly in a graduate college. Opportunities and encouragement for this additional training are being provided for young Assistants and Instructors in the Department. The program has proved popular.

The research facilities in general pathology have been reorganized and augmented during the year, and wide participation in research has been achieved.

It is hoped that students will be able to participate in such activities in the near future. Research programs, independent of the teaching staff, continue in the hands of Professor Theodore F. Zucker, Dr. Benjamin N. Berg, Mrs. Julia T. Weld, Professor Henry S. Simms, and Dr. Hans Kaunitz.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN McINTOSH, Executive Officer

New appointments in the Department of Pediatrics include those of Doctors David M. Greeley, Benjamin M. Kagan, J. Leonard Moore, Conrad M. Riley, and Frederic N. Silverman, all of whom were former members of the teaching staff or of the Babies Hospital organization who had been on the rolls prior to their military service. Resignations include those of Doctors George B. Bader, Sidney S. Chipman, Grace C. Hardy, William G. Heeks (from Surgery), Benjamin M. Kagan, C. Harrison Snyder, Paul S. Strong, and Wilson M. Wing. This unusually high rate of turnover is due in part to postwar adjustment, but in even greater measure to the mounting cost of living.

The Department's record for the past academic year has been one of progress. The teaching program, modified in several minor respects with a view to bringing the student in closer contact with patients, has thereby been improved as judged from the reports of instructors and from the quality of the papers submitted in competition for the William Perry Watson Prize. This prize was awarded to Mr. Harris E. Karowe, of the class of 1947.

Professor Donovan J. McCune, in collaboration with Professor Edith H. Quimby from the Department of Radiology, has made a study of the use of radioactive iodine in the diagnosis and prognosis of disorders of the thyroid gland in infants and children; and with Professor Charles L. Fox, Jr., of the Department of Bacteriology has undertaken a survey of the partition of certain electrolytes among tissue cells and extracellular fluids in a variety of clinical disorders. Professor Hattie E. Alexander, aided by a grant from the United States Public Health Service, has commenced a critical evaluation of various antisera and of streptomycin in the treatment of pertussis and also, with assistance from the Commonwealth Fund, has continued her studies of infections caused by *H. influenzae*. Her demonstration that the development of resistance of these organisms to streptomycin in the course of clinical treatment of infections results from a combination of two factors—gene mutation and selective survival of resistant strains—is an observation of fundamental importance.

Professor Richard L. Day's investigations into the problem of nuclear jaundice, a special phase of the Rh question in compatibility of blood, have

been supported in part by a grant from the John and Mary Markle Foundation. Doctors Katherine K. Merritt, Elinor F. Downs, and others, in close collaboration with the Department of Obstetrics and Gynecology and aided by grants from the National Life Insurance Foundation and the Rockefeller Foundation, have undertaken a long-term inquiry into the consequences of infections occurring in the early weeks of pregnancy to the fetus or to the infant born subsequently. Dr. Dorothy H. Andersen, whose studies of chronic nutritional disorders in infancy and childhood have for some years received generous support from the Commonwealth Fund, has accumulated evidence of a basic character leading to a new concept of the pathogenesis and course of celiac disease. Invited as a guest speaker, she presented her work before the American Academy of Pediatrics at its annual meeting in Pittsburgh. Dr. Paul A. di Sant'Agnese continued his evaluation of active immunization of young infants by simultaneous injection of multiple antigens, receiving additional funds therefor from Cutter Laboratories. Aided by a grant from E. L. Squibb and Sons, Dr. Conrad M. Riley has studied the relationship between the dose of penicillin administered per kilogram of body weight and the ensuing level of penicillin in the circulating blood. There were fifteen publications from the Department.

Although the Fifth International Congress of Pediatrics did not take place until the middle of July, preparations for it and organizational work of a time-consuming nature occupied the energies of several members of the pediatric staff during the academic year. Professor McIntosh was chairman of the program committee. Professor Donovan J. McCune was treasurer of the Congress. Professor Hattie E. Alexander, Professor Beryl H. Paige, Dr. Dorothy H. Andersen (from Pathology), Professor Edward J. Donovan (from Surgery), and Professor John Caffey prepared scientific exhibits in their respective fields of research activity. The entire Department participated in clinics and demonstrations designed to present modern concepts of American pediatrics to visitors who had been victims of the intellectual blockade prevailing during the war years.

During several months of the academic year Dr. Paul A. di Sant'Agnese was on leave of absence on account of illness. It is a pleasure to report his progressive recovery. Professor William S. Langford (from Psychiatry) was appointed Chairman of the Section on Psychopathology of Childhood of the American Psychiatric Association. Professor Donovan J. McCune was elected an honorary member of the Pediatric Society of Poland. Professor McIntosh was awarded the Cross of Knight of the Order of Leopold (Belgium).

The Holt Fellowship was held by Dr. Bertram R. Girdany.

## DEPARTMENT OF PHARMACOLOGY

Professor HARRY B. VAN DYKE, Executive Officer

A number of changes in the staff occurred during the academic year. Professor Alfred Gilman took up his duties on July 1, 1946. Dr. Everett W. Maynert accepted the position of Research Associate. Drs. John A. Beyer and Shih Y. P'an were appointed Assistants. Drs. John V. Scudi and Solomon Disick, Assistant Professor and Instructor respectively, resigned at the end of the academic year. Professor Scudi has accepted the position of Director of Research of the Pyridium Corporation; Dr. Disick found that the demands of private practice required all his time. Dr. Leo G. Parmer is still on leave in military service. Five fellows worked in the Department. Their names and the sources of their support were as follows: Mr. Joseph Chen and Dr. Pen-chien Chu, The American Bureau for Medical Aid to China; Dr. Irving A. Coret, The Rockefeller Foundation; Dr. James G. Foulks, Eli Lilly and Company; Miss Vera L. James, The United States Public Health Service.

Owing to additions to the staff the teaching program was more varied and better coördinated. Of inestimable help in the teaching of the second-year medical students was the active participation of Professor Virginia Apgar (anesthetics), Dr. Eleanor de F. Baldwin (drugs affecting the heart and lungs), Professor John W. Fertig (biostatistics), Dr. Henry W. Hays (demonstration of cardiac output), and Professor Kenneth B. Turner (cardiovascular drugs). All those listed are members of other departments, except Dr. Hays, who is an investigator in the research division of Ciba Pharmaceutical Products. Professor Gilman directed the course for residents; this course was offered twice and was well attended. Professor Alfred Gellhorn and Dr. Hamilton Southworth of the Department of Medicine presented for the first time a course in pharmacology and therapeutics to the fourth-year medical students.

Space limitations, to which reference was made in the Dean's Report of 1945-1946, continue to hamper greatly the research activities of the Department. However, through the coöperation of Professor A. Raymond Dochez and the Department of Bacteriology a research laboratory was made available temporarily to the Department of Pharmacology. This generous loan has permitted the housing of the Charles Christian Lieb Library in one room, which will also be used as a meeting room for the staff.

The investigative interests of the staff covered a wide range. Several anterior pituitary hormones have been under investigation by Drs. Beyer and P'an. An important part of this work is being conducted in collaboration with Professor Philip E. Smith of the Department of Anatomy. Preliminary investiga-

tion of the significance of the thymus gland as an organ of internal secretion has been under way. The antidotal properties of dimercaptopropanol (B. A. L.) in experimental poisoning by antimonial drugs were studied by Mr. James F. Gammill and Mr. Chester Southam. Professor Scudi in collaboration with Drs. William Antopol and Irving A. Coret investigated the toxicology and pharmacological behaviour of bacitracin, the antibiotic agent discovered by Miss Balbina Johnson and Professor Frank L. Meleney.

Professor Scudi, Dr. Maynert, and others have studied the metabolism of a barbiturate in which isotopic nitrogen had been incorporated. This work could not have been undertaken without the coöperative aid of Professor David Rittenberg of the Department of Biochemistry.

Professors Gellhorn and Gilman have been interested in the chemotherapy of neoplasms with nitrogen mustards. In collaboration with Professor Harry M. Rose of the Department of Medicine, Professor Gellhorn has also studied the action of a nitrogen mustard on a virus infection and on tuberculosis. Professor Gilman has begun an investigation of the action of nitrogen mustards on the metabolism of water and salts. Professors Gellhorn and Gilman have been investigating the relationship between structure and pharmacological activity of a series of nitrogen mustards. Provision has been made for the clinical testing of nitrogen mustards in collaboration with other departments, particularly the Department of Medicine and the Department of Radiology.

Professor Gellhorn with Professor Karl Meyer of the Department of Ophthalmology studied the lysozyme content of stools of patients with idiopathic ulcerative colitis. Professor Gilman investigated the fundamental basis of the action of drugs on the kidney, and plans to continue this work during the coming year.

Appreciation should be expressed for the gifts without which the research activity of the Department would have been greatly restricted. Contributions were received from the United States Public Health Service, the War Department, and the Committee on Growth of the American Cancer Society. Four commercial firms, Eli Lilly and Company, Smith, Kline and French, E. R. Squibb and Sons, and the Sterling Winthrop Research Institute likewise contributed generously to the support of research in the Department.

## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

For the first time in several years the staff has had opportunity to discuss the broad objectives and basic philosophic issues involved in physiological training and investigations.

In spite of strong competition from other institutions, the staff was kept intact until the end of the academic year. Now, unfortunately, the Department is losing several valuable members. Dr. Howard J. Curtis, Associate Professor, has accepted the chair of physiology at Vanderbilt University Medical School. Dr. Joseph H. Holmes, Assistant Professor, who upon return from active military duty took charge of the advanced course in physiology for residents registered under the graduate medical program, has been appointed Associate Professor of Medicine at the University of Colorado School of Medicine in Denver. Dr. Ingrith J. Deyrup, Instructor, has also resigned. She will be Assistant Professor at Barnard College. Dr. Daniel Kline, formerly Instructor in Physiology, has been awarded a fellowship by the National Research Council and will be working on special biochemical problems with Dr. C. N. H. Long, Professor of Biochemistry at Yale Medical School.

The Department is faced with extensive and complex problems in teaching, for it provides instruction for diverse groups of students. These include the large class of regular medical students, the dental students, fifty students in physical therapy, two groups yearly of some thirty residents in the graduate medical program, and forty to fifty students in the summer course, four-fifths of whom are graduate students working for advanced degrees in other departments of Columbia or in other universities. Some half-dozen advanced courses in physiology are also available. These are patterned along the lines of individual instruction. Under the Faculty of Pure Science there are usually three to six candidates for the Ph.D. degree in physiology being trained at one time, and from time to time the Department has also been responsible for the experimental training and the research of several candidates for the Doctor of Medical Science degree.

Members of the staff have taken part in the graduate courses given at the Eye Institute, and recently the Department has also contributed to the graduate teaching in the newly organized Psychoanalytic and Psychosomatic Institute. Active participation in the latter program has the very definite objective of determining the type of basic training in physiology which should be developed for this important new field of medicine. Each summer, as was the custom before the war, several medical students are given the opportunity to spend two or three months in the laboratory to learn something about experimental methods and to apply these in an investigation which is, when practicable, of their own choice. It has been demonstrated repeatedly that this experience, whether or not it results in some original contribution to science, is an invaluable addition to the medical training.

In addition to the above, the Department is providing training in teaching and research for a number of visiting research fellows. Among those in residence during the past year have been two from the Baruch Foundation.

Recently the Department accepted the first dental graduate selected for advanced training in physiology under the new graduate program of the School of Dental and Oral Surgery. The limitations of space and facilities compel us to select only a small fraction of the advanced students who apply for graduate training and who seek the opportunity to test their ability in physiological research.

Dealing with students representing such diverse professional interests, one becomes aware of a widespread tendency to consider that professional education is mainly, if not entirely, a training in technical proficiency. Technical proficiency is obviously important in medicine and American doctors are renowned for it, but the training also has a deeper purpose, common to all educative efforts, namely to develop the creative potentialities of the student and to train him in utilizing them. In the long run, this creative ability constitutes the most precious resource of the profession. Thus the real test is the degree to which knowledge and technical training can be mobilized in coping with unanticipated problems and circumstances. This concept applies at any level of education and in any field of endeavor, and it makes sense biologically in terms of survival of the individual or of the group. For this reason, we believe that the focal point of all our teaching, regardless of the eventual aim of the student, should be to encourage the perusal and the weighing of original evidence and to stimulate every inclination to active investigation, however simple.

Between thirty and forty scientific papers were published from the laboratory during the past year. Most of them dealt with various aspects of shock or with investigations which were the outgrowth of the war research on shock. In the meantime investigations have been started in new directions and work resumed on several problems left unfinished during the war. Nine members of the Department submitted papers for the Federation Meetings in Chicago and four junior members of the staff were given recognition by election to membership in the American Physiological Society.

Professor Walter S. Root and Dr. Wilson Grant have devised a technique for drawing blood samples from the bone marrow in unanesthetized dogs and with this have been able to study the changes in oxygen tension and oxygen content of bone marrow blood after severe hemorrhage.

Professor John L. Nickerson has continued investigations on the interpretation of the ballistocardiographic pattern in normal and abnormal circulatory conditions. Some of these studies have been carried on with the collaboration of Dr. Rene Wergia and other members of the Department of Medicine.

Professors Gregersen and Nickerson, in collaboration with Doctors William H. Sheldon and C. Wesley Dupertuis of the Constitutional Clinic in

the Department of Medicine, have attempted a study of the relation of somatotypes to blood volume and cardiac output in fifty-three medical students from the first-year class. Average normal values have a standard deviation of about ten percent and some apparently normal individuals may readily deviate from the average normal value by fifty percent. Hence, the average normal blood volume for example, useful as it is clinically, cannot be applied indiscriminately.

<sup>1</sup> During the past year a laboratory of electrophysiology has been established which, up to the present, has been under the direction of Professor Curtis. Professor Curtis's research included a study with Dr. Henry Fleck, Baruch Fellow, on the problem of the mechanism of muscle spasm, and some investigations with Dr. Bronislaw Zawadzki, Ella Lyman Cabot Trust Fellow from Warsaw, Poland, on the relation between the electrical and mechanical events in muscle contraction. Dr. Teh-Pieh Feng, eminent Chinese physiologist from the Academia Sinica in Shanghai, who has been in this country on a travel grant from the American Bureau for Medical Aid to China, spent several months in the electro-physiological laboratory studying the construction of modern electronic equipment. Professor Curtis has also completed a section on the biological effects of radiations for a new book, *Advances in Medical Physics*.

Professor Holmes, with the assistance of Dr. Louis J. Cizek, has been completing some of his prewar investigations on the influence of salt deficiency on the fluid exchange and renal function. Dr. Thomas Allen has been investigating the binding of the dye T-1824 with plasma albumin and demonstrated quantitatively the effects of certain detergents on the dye-albumin bond.

Drs. Clarissa Beatty and William Nastuk have continued the investigation of metabolic disturbances in hemorrhagic shock. Dr. Beatty has also been studying glucose tolerance in adrenalectomized dogs and glucose utilization in experimental diabetes. Dr. Daniel Kline has made studies on the aminonitrogen metabolism in the same animals. The investigation of salt therapy in hemorrhagic shock being carried out by Miss Monica Reynolds is nearing completion.

Professor William W. Walcott has been mainly interested in developing an ingenious new method for determining regional blood flow in un-anesthetized animals. Professor Shih-Chun Wang and Mr. Herbert Borison have completed a quantitative analysis of the carotic sinus reflex in which they determined the degree to which the sympathetic and vagus nerves are involved in the depression of the heart rate upon stimulation of the pressoreceptors.

Dr. Marjorie Zucker, Research Fellow under the Baruch Grant for Physical



Medicine, has been studying frostbite. Recently with the assistance of Mr. Douglas Tompkins, first-year medical student, she has been measuring extracellular fluid and dye disappearance rates in plasmapheresed dogs. Dr. Richard Lee, fourth-year medical student, completed and published the results of an investigation on the effects of vitamin C deficiency on the small blood vessels in rats. Dr. Peter Orahovats, Research Fellow from Bulgaria, has undertaken a study of the nervous control of the minute blood vessels of the eye. Dr. Jerome Gersten, Baruch Fellow in Physical Medicine, who has recently received an appointment at the Mayo Clinic, developed a procedure for maintaining the blood pressure in unanesthetized dogs at greatly reduced levels by direct vagal stimulation and studied the effects of this on the plasma volume. Dr. Cizek and Professor Gregersen are collaborating in a study of the influence of carotid sinus reflexes on the fluid exchange.

The laboratory has profited from the visits of many distinguished scientists during the past year. Several of them, including Dr. Einar Lundsgaard, Professor of Physiology at the University of Copenhagen, and Dr. Vassilev Parin, Professor of Physiology at the Third Medical School in Moscow, addressed the staff at one of the weekly departmental seminars. In May Dr. F. J. W. Roughton, recently appointed Professor of Colloid Science at Cambridge University, England, who was a member of this Department for some time during the war, lectured on recent investigations of the properties of hemoglobin. Earlier in the year Dr. J. B. S. Haldane lectured on his investigations of the effects of high pressures on man.

Professor Gregersen was a member of the Medical Teaching Mission to Poland during the summer of 1946. He has given talks on his experiences there and on medical education in Poland before various groups, including the students and faculty of this School, at the Kosciusko Foundation of New York, and at the Yale University Medical School. Professor Gregersen has recently been named President of the American Bureau for Medical Aid to China and has requested sabbatical leave during the first half of 1947-1948 in order to spend some months in China. Professor Root has served as member of the Council of the Society for Experimental Biology and Medicine and as Chairman of the New York Section of this organization. Professor Curtis has served as special consultant and member of the radiobiology study section of the U. S. Public Health Service, as special consultant to the U. S. Atomic Energy Commission and responsible reviewer for the declassification of reports on atomic energy. He has also been a member of the Panel on Physics of the National Research Council Committee on Growth. Several members of the staff have been active in defeating harmful antivivisection legislation and in the furtherance of proper legislation for the federal support of science.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

Although the teaching activities proceeded as usual, this year has marked a near return to normalcy following the curtailments made necessary by the war so that the Department is beginning to catch up on the processing and compiling of research material which had accumulated.

The consultation and clinical work of the psychiatric division in the Department of Medicine has been carried on chiefly by Drs. A. Louise Brush, Kenneth Kelley, Ruth Moulton, and Edward S. Tauber with the assistance of Dr. John S. Poe. Dr. Viola W. Bernard has been giving most of her time to the Psychoanalytic Clinic where she is in charge of intake; Dr. Sadie H. Zaidens was just completing her final year in graduate studies at the Psychoanalytic Clinic and therefore was able to give little time to the division.

During the year forty-nine psychiatrists attended the Psychiatric Clinic, the Group Clinic, and the Psychosomatic Clinic at Vanderbilt Clinic. In addition, five psychiatrists from the Neuropsychiatric Hospital of the Veterans Administration at Northport attended for periods of one month each.

Through the interest of the Chief of Neuropsychiatry of the Veterans Administration, Branch Number Two, Dr. Nils Hersloff, the Neuropsychiatric Hospital of the Veterans Administration at Northport has sent one experienced man to the Vanderbilt Clinic per month since February. He attends the regular Psychiatric Clinic three times a week and the Group Clinic three times a week in the afternoon. This has served as part of a refresher training course, and these men have been quite valuable to us.

In addition to the undergraduate teaching it was possible to give the ten-week autumn postgraduate courses in neurology and psychiatry, with forty-one students, for the first time in three years, the war years having interrupted the teaching program.

The Psychoanalytic Clinic has carried on its teaching program at a satisfactory level of efficiency throughout the year. Professor George E. Daniels conducted his regular course on psychosomatic medicine for graduate students in the Psychoanalytic Clinic. Guest lecturers and members of the Department contributed individual lectures to this course.

The Psychosomatic Clinic has continued to operate on Tuesday and Thursday mornings throughout the year. The present patient load is fifteen and most of these have been seen twice a week. Drs. Nathan W. Ackerman, John A. P. Millet, Hilde Bruch, and Ruth E. Moulton have controlled the cases with the students of the Psychoanalytic Clinic.

The staff of the Psychosomatic Clinic has been under considerable pressure

to accept patients for treatment who have been referred both from within the Medical Center and by outside physicians or agencies. As the group of graduate students working in the clinic increases, this demand will be met more adequately, but, since the cases have to be limited by requirements of teaching and research, further provision should be made in the near future for more complete coverage for this group of patients.

There is increasing demand for the assistance of the division in giving didactic and clinical courses in psychosomatic medicine in other departments of the Medical School. Such teaching is bound to expand into courses for students in the various residency training programs at the Center, as well as courses for the general practitioner and specialist both in psychiatry and other fields. To fulfill our growing responsibilities the present staff will have to give additional time and shortly more staff members will be needed as these are responsibilities which we cannot and should not avoid.

Dr. Moulton gave a course to postgraduate dentists entitled Psychiatry and Psychosomatic Medicine as Applied to Dentistry. Dr. Kelley taught three courses on psychosomatic medicine to physical therapy students.

Sixty articles and books have been published by members of the staff during the year, and sixty-three additional papers and addresses have been presented to scientific groups outside the University.

The staff members, whose research appointments or laboratories are at the Psychiatric Institute, have given their attention to the following problems: lipid metabolism in the brain, including choline determination; serum cholesterol in mental disease and changes following electric shock therapy; quantitative studies of glutamic acid as a therapeutic agent in mental deficiency and the effect of glutamic acid following shock therapy; steroid hormone investigations; study of the motor cortex in experimental epilepsy in animals; fluorescence microscopy of nervous tissue; studies in genetics utilizing twin material, including geriatric problems with projects supported by the Rockefeller Foundation; studies of experimental electric shock in monkeys; histopathologic studies in pernicious anemia, schizophrenia, and presenile psychoses; psychological studies on patients treated with various types of shock therapy, including those patients treated by prefrontal lobotomy; electroencephalographic studies in early schizophrenia, poliomyelitis, scleroderma, and dysinsulinism; long-term studies of children suffering from "malignant" and "benign" tics; and a study of criminal offenders and their families which is being supported by the Josiah Macy, Jr., Foundation.

Research activities in the medical-psychiatric division are divided into the further processing of data on research undertaken before the war and the initiation of new projects. Drs. Kelley and Bernard are formulating the second part of their study on psychiatric aspects of sterility in women.

Dr. Bernard is also attempting to coördinate recent findings in relation to spasmodic occlusion of the fallopian tubes with personality factors and has contributed to a symposium on sterility at Atlantic City on the psychiatric aspects of infertility. In addition to the immediate report on findings, it is planned to continue this research in the psychiatric aspects of sterility.

Professor Daniels and Dr. Tauber are preparing another paper on observations on the use of testosterone in cases of human surgical castration, eunuchoidism, and impotence in late middle life.

The Departments of Anatomy and Obstetrics and Gynecology have invited the Department to continue its coöperation in research projects in the psychiatric aspects of disturbed functions of female reproduction. As an initial project, Drs. Poe and Kelley are exploring with Dr. Charles L. Buxton of the Department of Obstetrics and Gynecology an unselected series of cases of amenorrhea. It is planned after a preliminary sampling of clinical material to start organized research on this problem in which other members of the Department who have had special experience in the field of human sex biology will participate.

A plan for research in the psychosomatic aspects of hypertension is being formulated from the medical, neurological, and psychiatric viewpoints, with a view to coördinating facilities and information in setting up the psychosomatic program.

Further studies are under way in non-specific ulcerative colitis. The ground is also being laid for a study of ileostomy and colostomy patients to explore the possibilities of more direct observation of the pathological processes in the colon as affected by emotional changes taking place in the patients. A statistical investigation of admissions of ulcerative colitis cases to the Presbyterian Hospital and Babies Hospital over the last twenty-five years has been started, and it is planned to make a thorough study of the psychiatric material already at hand on patients who have been more intensively studied as well as an unselected series of hospital admissions. It is evident that the personality component recognized by the late Cecil Murry at the Presbyterian Hospital in the late 1930's is assuming increasing importance in the understanding and treatment of this baffling disease. We are in a position to make further significant contributions to this problem and research will be continued.

Dr. Zaidens in dermatology is conducting personality studies of patients with neurodermatitis and neurotic excoriations, as well as research on dermatological hypochondriasis which she finds closely associated to schizophrenia.

## SCHOOL OF PUBLIC HEALTH

Professor HARRY S. MUSTARD, Associate Dean and Director

The current academic year has been one of both productivity and strain. The teaching activities were unusually heavy with a larger number of students in attendance at the School than in any previous year. During the year there were enrolled in the School of Public Health ninety-seven full-time graduate students, distributed as follows: thirty-nine candidates for the Master of Public Health degree, forty-eight candidates for the Master of Science degree in hospital administration and ten full-time students majoring in other specialties. In addition, there were approximately thirty-five special students registered for one or more courses.

The teaching program followed along customary lines with some expansion due to the addition of new members to the staff who developed established courses and added others and to the necessity of providing instruction for a student group whose background was more diversified than in former years. The needs of the large number of students of non-medical background and interests outside of the direct field of public health administration were met by providing a number of new courses.

A program leading to the Master of Science degree in health education was inaugurated in the School with the assistance of Miss Sophie P. Williams, Lecturer in Health Education. This course requires one academic year in residence, plus a three-month period of field training. The School plans to expand this phase of its curriculum in the coming year.

A special course of twelve weeks' duration was given for industrial hygiene engineers under the auspices of the Division of Industrial Hygiene.

In the field of research Dr. Harold W. Brown, Professor of Parasitology, and his associates have continued studies on filariasis in the laboratory and at St. Croix, Virgin Islands. These studies are supported by the John and Mary R. Markle Foundation. Professor Brown and his staff have also continued studies on amebiasis, which work is partially financed by grants from Sharp and Dohme and the Abbot Laboratories. Several publications have resulted from the research which is being done in the parasitology laboratories.

Dr. Leonard J. Goldwater, Professor of Industrial Hygiene, with Dr. Maurice E. Shils has undertaken investigations on the relationship of dietary and nutritional factors to susceptibility to industrial poisoning. This work is partially financed by grants from the United States Public Health Service and the United States Army Quartermaster Corps.

Miss Anna Cheskis, Instructor in Epidemiology, is concluding the laboratory aspects of a study which has been under way for several years on the relationship between streptococcus hemolyticus and rheumatic fever.

Professor John M. Henderson served briefly in Puerto Rico as consultant to the Department of Health of Puerto Rico to prepare a plan for the possible eradication of the malaria vector *anopheles albimanus*. Professor Brown spent the month of March in Surinam as a consultant on problems of tropical disease control to the Aluminum Company of America.

Professor Mustard went to England to attend the Health Congress of the Royal Sanitary Institute as a representative of Columbia University and to study public health conditions and teaching services in Great Britain.

The teaching and research program of the School has been carried on under some difficulties because of lack of space. One of the highly essential needs for the proper development of the School is more adequate quarters for additional laboratories, classrooms, and offices.

Additions to the staff are as follows: Mr. John M. Henderson, Professor of Sanitary Science, who assumed full-time duties on August 1, 1946, after being on leave for several years with the United States Public Health Service; Dr. E. Gurney Clark, Professor of Epidemiology, March 1, 1947; Dr. James L. Troupin, Assistant Professor of Public Health Practice, July 1, 1946; and Dr. Maurice E. Shils, Instructor in Industrial Hygiene, July 1, 1946.

## DEPARTMENT OF RADIOLOGY

Professor Ross GOLDEN, Executive Officer

Dr. Marcy L. Sussman was promoted to Associate Clinical Professor; Dr. William Harris to Assistant Clinical Professor; Drs. Marjorie J. LeMay, Ida A. Sterman, and Josephine S. Wells to Instructors.

The resignation of Professor Maurice Lenz as Chief of the Radiotherapy Division of the Radiological Service was accepted with regret. Dr. Harold W. Jacox has been appointed Chief of the Radiotherapy Division of the Radiological Service of the Presbyterian Hospital and Professor of Radiology.

Dr. Vincent M. Whalen resigned to enter private practice in Red Bank, New Jersey; Dr. Stephen A. Forbes to be radiologist at the Great Falls Clinic, Montana; Dr. Murray M. Friedman to become Director of the Santa Fe Clinic in New Mexico; Dr. William A. Goodrich to begin practice in Hartford, Connecticut; Dr. Allan L. Segal to be radiologist at Louisiana State University; and Dr. C. William Chang to prepare for the establishment of his practice in China. Dr. Leslie A. McClintock, appointed last year as Associate in Biochemistry assigned to Radiology, is on leave of absence from December 1, 1946, for the purpose of doing research work in Santa Fe, New Mexico.

A number of volunteer assistants were permitted to observe the work in the Department of Radiology. Dr. Lloyd H. Smith from Wenatchee, Wash-

ington, worked in radiotherapy for six months. Drs. Julio C. De Abreu from Lisbon, Portugal, Pablo Schlanger from Buenos Aires, Argentina, Armando Moctezuma from Puebla-Pue, Mexico, Francisco P. Cifarelli from Rosario, Argentina, Lien-Ming Li from Shanghai, China, and Melchor Riera from Santiago, Chile, observed the work for varied periods of time in the different radiological divisions.

In May, 1947, a Spanish edition of Professor Golden's monograph, *The Radiologic Examination of the Small Intestine* was published by Vasquez in Buenos Aires. He gave three papers at the Rocky Mountain Radiological Society and an instructional course on diseases of the small intestine at the meeting of the American Roentgen Ray Society, where he also read a paper written with Professor Robert P. Ball and Dr. Allan L. Segal. In November he attended the Second Inter-American Congress of Radiology in Havana, Cuba, as a delegate of the American College of Radiology; there he gave a lecture on carcinoma of the stomach. In December he attended the meeting of the Radiological Society of North America, giving a refresher course at that time. In April, 1947, Professor Golden attended a meeting in Berkeley, California, of the Editorial Board of the *American Review of Tuberculosis*, of which he has been a member for about ten years. On May 10, 1947, he spoke at the Pennsylvania Radiological Society. In April Professor Golden was made an honorary member of the Colombian Radiological Society and appointed a member of the Technical Advisory Committee of the Federal Hospital Council. He was awarded an honorary Doctor of Science degree at Cornell College, Mount Vernon, Iowa. Professor Golden continued as Branch Section Chief in Radiology of Branch Number Two, Veterans Administration, inspecting Veterans Hospitals, attending various conferences for the standardization of equipment and facilities in radiological departments, and editing medical papers.

Professor Lenz presented a paper at the combined sessions of radiology and otolaryngology, American Medical Association. He gave the Carman Lecture of 1946 for the St. Louis Radiological Society, and a paper at the Second Inter-American Congress of Radiology in Havana last November, together with Dr. Josephine Wells and Professor Arthur P. Stout. He gave an instructional course at the meeting of the American Roentgen Ray Society in September and a symposium on cancer of the breast and tumor of the larynx and pharynx at the Graduate Fortnight of the New York Academy of Medicine. Professor Lenz was elected President of the American Radium Society, received an Honorary Membership from the St. Louis Medical Society, and Honorary Fellowships from the College of Physicians and Surgeons of Costa Rica and the National Academy of Medicine, Colombia. He was delegate of the American College of Radiology to the Second Mexican Cancer Congress

and delegate of the Radiological Society of North America to the Second Inter-American Congress of Radiology.

A program for third-year students wishing to take radiology as an elective was instituted under the direction of Professor Robert P. Ball. At the end of their service of approximately three months the students presented a resume of their findings in the subjects assigned to them.

Until July 1, 1946, the activities of the Radiological Research Laboratory were concentrated on research problems relating to the protection of personnel in the Atomic Bomb Project under contract with the Manhattan District, Corps of Engineers, United States Army. This work is being continued and expanded under the Atomic Energy Commission, but members of the regular staff of the Laboratory are now on a part-time basis on this project and it is thus possible to undertake the study of problems more closely related to therapeutic radiology.

Professor Gioacchino Failla, Director of the Radiological Research Laboratory, has developed a method and apparatus for the measurement of "tissue dose" in the case of radioactive isotopes internally administered. He has prepared charts and tables to facilitate the practical application of the experimental results. Professor Failla gave a review of radiological units in the light of recent developments at the Second Inter-American Congress of Radiology, and lectured on nuclear physics and medical research at a meeting of the American Pharmaceutical Manufacturer's Association. Professor Failla has been appointed a member of the National Committee on Radiation Protection; of the Bureau of Standards Advisory Committee on health hazards from ionizing radiations; of the Committee on Human Applications of the Interim Advisory Committee on Isotope Distribution; of Interim Medical Advisory Committee of the Atomic Energy Commission; and of the Radiobiology Study Section of the Public Health Service. He was appointed consultant to the Los Alamos Scientific Laboratory and the Argonne National Laboratory, which is an extension of the Metallurgical Project.

Professor Edith H. Quimby has been engaged in a number of coöperative research projects with various members of the clinical staff, using artificial radioactive elements as tracers in various conditions. She has continued the use of radioactive sodium in the study of extent, diagnosis, prognosis, and indications for therapy in peripheral vascular disease. With Professor Donovan J. McCune and other members of the Department of Pediatrics Professor Quimby has carried on a study of the uptake of iodine by normal and malfunctioning thyroid glands in children, using radioactive iodine as a tracer. Professor Quimby and Dr. Sidney C. Werner of the Department of Medicine are studying a series of hyperthyroid adults, also with radioactive iodine. In some of these patients, as determined by tracer tests, the radioactive iodine is



also used as a therapeutic agent. Professors Quimby and Virginia K. Frantz of the Department of Surgery studied several cases of carcinoma of the thyroid for metastases, using radioactive iodine as the tracer. Professor Quimby lectured on radioactive sodium as a tool in medical research at the meeting of the American Roentgen Ray Society, at the Society of Experimental Biology and Medicine, at the Metropolitan Section of the American Physical Society, and at the American College of Physicians. She lectured on radioactive isotopes at the Society of Clinical and Oral Pathology, at The Veterans Hospital in New York, and at the Barnard College Science Club. She spoke on cancer control and radiology at the American Cancer Society; on the uses of atomic energy in biology and medicine at the Second Inter-American Congress of Radiology; on the uptake of radioactive iodine in normal and mal-functioning thyroid glands in children at the Radiological Society of North America; on the atomic bomb at the Society of Medical Jurisprudence; on radioactive energy in biology and medicine at Vassar College; and on artificial radioactivity at the Memorial Hospital Fellowship Group. In March, 1947, Professor Quimby took part in a refresher course organized by the American College of Radiology in Philadelphia, speaking on dosage in radiation therapy, on physical considerations in radio-isotope therapy, and on contributions of the physicist to the radiation treatment of cancer of the breast.

Radioactive sodium has been used by Professor Titus C. Evans in co-operation with Professor Lenz in the treatment of patients with leukemia and allied diseases. The results so far indicate that radioactive sodium produces about the same results in chronic lymphogenous and myelogenous leukemia and polycythemia vera as x-rays or radioactive phosphorus. A report of this work was presented at the American Radium Society meeting in June, 1947, by Professors Evans and Lenz and Doctors Donlan and LeMay. An improved photographic method of detecting the presence of radioactive materials in tissue has been developed by Professor Evans. He lectured on this subject at the Society for Experimental Biology and Medicine.

Dr. Murray J. Shear (at the National Cancer Institute) and others have shown that certain polysaccharides tend to concentrate in tumors and produce hemorrhage and necrosis there. It is possible that this, in combination with x-rays, might destroy tumors more readily than either agent alone. Professor Evans has started work along these lines using tumor-bearing mice. Professor Evans was a member of the Radiological Safety Section during the first bomb test of Operation Crossroads at Bikini.

## DEPARTMENT OF SURGERY

Professor GEORGE H. HUMPHREYS, II, Executive Officer

The past year has been one of transition. On October 1, 1946, Dr. Allen O. Whipple retired as Valentine Mott Professor of Surgery and as Director of the Surgical Service after twenty-five years of outstanding accomplishment as a surgeon, teacher, and contributor to medical knowledge. On the same date, Doctors Hugh Auchincloss and John M. Hanford also retired, and Doctors Fordyce B. St. John and Frank L. Meleney retired from active teaching assignments. The contributions of these men to the Medical School, to the University, and to medical science have established a reputation for excellence in training and research which will be a challenge for their successors to maintain.

This year also marked the resignation of two other men who have served long and faithfully on the teaching staff. Dr. Beverly C. Smith, who resigned on October 1, 1946, is well-known for his many contributions to the study of peripheral-vascular disease and the surgical complications of diabetes. Dr. Louis Bauman, assigned to surgery from the Department of Medicine, also resigned on October 1. Dr. Bauman had been in charge of the Surgical Chemistry Laboratory since January, 1922. He not only devised and supervised the greater part of the increasing load of biochemical tests required for the Surgical Service but also made notable contributions to our understanding of biliary and pancreatic function. The loss to the Department of the services of these outstanding teachers, who had for so many years given so generously such a large part of their time and energies to the University, cannot be calculated nor readily replaced.

In an effort to provide in part for this loss three new full-time positions were created and filled during the year. Dr. Octa C. Leigh, Jr., was appointed an Associate in Surgery assigned to Presbyterian Hospital, and Dr. J. Gordon Lee was appointed to the same position assigned to Bellevue Hospital. In each hospital each man is in direct charge of student activities on the wards and takes an active part in the resident training program. Dr. John S. Lockwood was appointed Professor of Surgery. Professor Lockwood came to us from Yale University where he has held the position of Associate Professor of Surgery since 1944. Having been Chief of the Division of Surgery of the Committee on Medical Research of the Office of Scientific Research Development during the war, he brings to the Department the benefit of an unequalled experience in research programs. He is now in general charge of the surgical laboratories.

At the beginning of this academic year the Fracture Service, which had long worked under Emeritus Dean William Darrach and recently under

the late Professor Clay Ray Murray within the Department of Surgery, was transferred to the Department of Orthopedic Surgery as a step in the closer integration of the teaching in that department which will follow the prospective move of the New York Orthopaedic Hospital to the Medical Center. This group remains closely associated with the general surgical teaching, however, where their excellent program in the surgery of trauma continues as an integral part of the third-year clinical clerkship.

At the same time the Pediatric Surgical Service, under the able direction of Professor Edward J. Donovan, was transferred to the Department of Surgery. The teaching of pediatric surgery, which is assuming increasing importance in proportion to the recent rapid extension of the possibilities of surgical treatment in infancy and childhood, is being reorganized in coöperation with the Department of Pediatrics on the fourth-year level.

With the return of Dr. Frank B. Berry from military service, and his appointment on July 1 as Professor of Clinical Surgery and Director of the First Surgical Division at Bellevue Hospital, the usefulness of that service in teaching, both at the undergraduate and graduate levels, has been greatly enhanced. Increased overlapping of the surgical staffs of Bellevue, Babies, and Presbyterian Hospitals is already resulting in better coördination and integration in the combined problem of presenting a well-rounded program of undergraduate teaching, graduate training, and research.

The rapid release of large numbers of men from military service and the need of these men to complete their graduate training has presented a difficult problem. A five-year resident training program has now been set up and a basic internship of eighteen months, similar to that which has been developed before the war, has been revived. Two residents, sixteen assistant residents, and six interns are now appointed. This program can take care of only a fraction of the men with excellent records who desire training, including many who had begun their training with us before entering the armed forces. To ease this problem we are accepting as special graduate students each year eight additional men who will receive training on the assistant resident level for one or two years. By this means it has been possible this year to provide for all of the men who had already started their training and to whom we felt a special obligation.

In spite of the dislocations of changing personnel, the work of the surgical laboratories has continued at a high level of productivity. Under the guidance of Professor Arthur P. Stout, thirty full-time graduate and undergraduate students and nineteen part-time graduates have received training in surgical pathology. The great popularity of this training program in the face of difficult restrictions in space and material attests its value. It has been possible only through the self-sacrificing devotion and hard work of Professors Stout

and Virginia K. Frantz, and the high caliber of the two Resident Surgical Pathologists, Drs. Emil H. Schnap and William L. Lehman.

The diagnostic service of the Surgical Pathology Laboratory for other hospitals in this and foreign countries has continued at a high level. This work has been supplemented by tumor seminars conducted by Professor Stout in Columbia, Missouri, in the autumn of 1946, and in Birmingham, Alabama, in April, 1947. Professor Stout has also become Consulting Surgical Pathologist for the Halloran Hospital Veterans Association, where he has conducted a series of bi-monthly demonstrations.

Members of the Department have been engaged in original research on the following projects: Professor Virginia Apgar and Dr. Belmont Musicant, on studies on the metabolism of procaine with particular respect to its possible usefulness in the control of intractable pain; Professor Arthur H. Blakemore, on experimental studies on the surgical treatment of mitral stenosis, the development of a device for plastic reconstruction of large blood vessels, and, with Professor Smauel Graff of the Department of Biochemistry and Dr. Arthur Voorhees, the alterations in the electrical resistance of blood during clotting; Professor Frantz, further studies on absorbable hemostatic gauze and a variety of other materials with similar properties, and, with Professor Edith Quimby of the Department of Radiology, a study of the effects of radioactive iodine in certain cases of thyroid carcinoma; Professors Cushman D. Haagenzen and Samuel Graff, in collaboration with Dr. Stanley of the Rockefeller Foundation at Princeton, on the identification of a virus apparently responsible for the milk factor of mouse mammary cancer; Dr. David Habif, with Dr. Stuart W. Cosgriff and others, on the study of the therapeutic use of anticoagulants in the prevention of thrombosis and embolism; Professor Harold D. Harvery, with Professor Robert Ball of the Department of Radiology, on the further development of a practical method of applying x-ray diagnosis in detecting gastric cancer in its earliest stages; Professor Edward L. Howes, on a study of tissue reactions in the development of gastric cancer induced by carcinogenic substances in experimental animals and the chemotherapy of wounds, a study in local application of antibiotic compounds in the elimination of infection in contaminated wounds.

Dr. Cornelius J. Kraissl is engaged in an appraisal of a new skin antiseptic; Dr. Adrian Lambert, Jr., in an experimental study of shunting operations in the treatment of pulmonic stenosis; Professor Raffael Lattes, in a study of possible changes in sympathetic ganglia following experimental hypertension in dogs; Dr. Octa C. Leigh, Jr., and Professor John S. Lockwood, in collaboration with the Department of Physiology, in studies on blood volume and total water volume changes in surgical patients; Professors Lockwood and Harry

Robinson, in further studies on the pathological physiology of peritonitis; Professor Frank L. Meleney, in laboratory and clinical studies on bacitracin (a new antibiotic); Dr. Margaret R. Murray, in tissue culture studies on human tumors, the influence of various biological and chemical studies on the growth of human cells in tissue culture, a study of the growth characteristics of muscle and ganglion cells; Doctors John Prudden and William L. Lehman, in collaboration with Professor Karl Meyer of the Department of Biochemistry, in studies of gastrointestinal lysozyme and its possible relationship to peptic ulcer and ulcerative colitis; Dr. John Scudder, in studies of artificial plasma substitutes.

During the year members of the Department attended nearly fifty meetings of various medical societies out of town, and twenty-five papers were presented. Over fifty visitors attended surgical dressing rounds, clinics, and conferences for periods varying from a few days to eight months. These visitors came from many states in this country and from many other nations, including Argentina, China, Colombia, Denmark, Egypt, England, France, Greece, India, Iran, Iraq, Jamaica, Lebanon, Mexico, Norway, Philippine Islands, Russia, Spain, Sweden, Syria, Turkey, and Venezuela.

We were hosts to two surgical societies, the Upstate Society for Thoracic Surgery and the Surgeons' Club. Clinical programs were arranged for each of these organizations.

During the year twenty-five members of the staff have published thirty-two papers and articles on clinical and experimental subjects. In addition Professors Frantz and Harvey collaborated on the publication of a textbook, *Introduction to Surgery*, and Professor Humphreys collaborated with Professor Frederic W. Bancroft in editing the fourth volume in the latter's series on surgical treatment, entitled *Surgery of the Soft Parts*.

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

The undergraduate curriculum has been revised so that with a complete staff a return to personal teaching supervision has been resumed. This includes more active work in the Department by the student clerks under the supervision of the residents and staff.

The program of graduate education has been resumed with the former full three years of instruction, as formerly. Dr. Charles Lynch is working under the guidance of Professor Earl T. Engle of the Department of Anatomy upon some metabolic studies in hypogenitalism and cryptorchidism. Dr. George Barrett is working under the guidance of Professor Hans T. Clarke of the

Department of Biochemistry upon metabolic aspects of urinary calculi including balance studies of calcium magnesium and phosphorous.

Professor George W. Fish has published the second edition of *Modern Urology for Nurses* with Miss Sheila Dwyer. He has also completed and published his investigations upon absorbable gauze in urology. Professor John N. Robinson has continued the studies upon infertile males, correlation, sperm counts, with biopsies and studies in methods of treatments with the Department of Obstetrics and Gynecology. He published his studies upon genito-urinary injuries in the European Theatre of operation with Drs. Howard I. Suby, Ralph H. Mellenix, and Charles W. Reiser, all of army service. He also wrote, in collaboration with Dr. George W. Prather, the section on urology in the *Medical History of World War II* which has not yet been published.

During the year Dr. Meyer M. Melicow continued his investigations in pathological observations upon various aspects of carcinoma, reporting upon cancerous and pre-cancerous lesions of the penis and also upon the bladder biopsy, an evaluation of the cystoscopic procedure. He also presented the Department's classification of adrenal tumors, and in an exhibit at the one hundredth anniversary meeting of the American Medical Association at Atlantic City he was awarded, with Professor George F. Cahill, the American Medical Association Gold Medal.

Dr. John K. Lattimer, the last member of the Department to return from the armed forces, has been in charge of the investigation of streptomycin in urinary tuberculosis at the Veterans Hospital in the Bronx, and has given preliminary reports on this work. He has published papers upon the treatment of anuria, similar urogenital anomalies in identical twins, late erosion of a shell fragment into the bladder, an endotherm for chronic prostatitis, true hermaphroditism, and a report on the status of urology in Europe. He has continued his researches into the improvement of surgical methods to anastomose the vas deferens in cases of sterility in the male. He has initiated an instructional program for the resident staff and students which include the teaching of new surgical techniques by means of motion pictures, a journal club, and a pathological conference with Dr. Melicow.

Dr. Manek H. Masina has continued his heterogenous growth studies of urinary tumors with reports upon the variances in renal tumors and melanotic skin penile tumors.

Dr. Harry Seneca was appointed a Research Fellow. He is engaged in special bacteriological and antibiotic studies of urological infections under the Schering Corporation Grant.

The Department has continued its studies upon adrenal dysfunctions and adrenal tumors with members of other departments and, during the year with

the Department of Medicine, demonstrated the use of benzodioxane and an epinephrine antagonist in the diagnosis of pheochromocytoma. There has been continued coöperation with other departments upon various research projects. The staff has participated in reporting the activities of the Department at medical meetings and in publishing of papers.

## MEDICAL LIBRARY\*

SEYMOUR ROBB, Medical Librarian

The Medical Library has just completed its busiest and one of its most productive years. Unquestionably the most important development in the strengthening of our collection has been the acquisition of much foreign material covering the war years. This has been accomplished through receipt of subscriptions held up by the war, through the Library of Congress Coöperative Acquisition Program, and through an active exchange program with several European libraries.

There has been a marked increase in all of the functions and activities of the Medical Library. The number of patrons making use of the Library rose to the substantial figure of 135,399—an increase of 26.8 percent over last year. Circulation of books and journals also reached an all-time high, with 161,528 items being supplied to readers. This is an increase of 17.9 percent over the previous year. Statistics which have been submitted show in detail the amount of material handled by the Medical Library during the past year and emphasize the urgency for more adequate housing facilities in the immediate future.

While it is impossible to acknowledge here all of the gifts made to the library, two donations of Professor Frederick A. Mettler are of paramount importance to students of the history of medicine—a collection of 1,700 slides dealing with medical historical subjects and a “Biographical Dictionary of Medicine” compiled by the late Dr. Cecile C. Mettler over a period of many years. A beautifully preserved manuscript, “Lectures on Physiology, Anatomy and Surgery as delivered in the College of Physicians and Surgeons in the City of New York in the Session of 1812 and 1813 by J. A. Smith, Professor, taken by C. Drake, Student” was presented by Professor Jerome P. Webster and makes an interesting and valuable addition to our Memorabilia Collection. We were able to purchase several choice items in the field of dental historical literature through the generosity of members of the faculty and friends of the School of Dental and Oral Surgery.

Every effort has been made during the past year to bring the library closer to the individual patron. Starting in the early fall with a series of lectures to

\* For complete report see the Report of the Director of Libraries, Columbia University.

students and staff members on the use of the library, we have also been glad to coöperate by ordering second copies of journals most in demand, by restricting current issues of journals from circulation so that a copy may always be found in the library, by checking bibliographies for authors and researchers, and by making special concessions to the Dental Abstracts Society to assist in the publication of *Dental Abstracts*, now being published by the Columbia University Press. One of the most effective aids to this type of personal service has been the assignment of a professional assistant to the entrance of the Main Reading Room so that any patron needing help may find it readily forthcoming. A well received innovation has been the establishment of a popular reading section. One hundred volumes ranging from novels to biography and history are borrowed every sixty days from the Browsing Room at Butler Library. These are allowed to circulate for a week at a time and have been in constant demand since last September when it was first tried as an experiment. One of our most successful services which has extended far beyond the Medical Center has been the publication of a series of Medical Bibliographies which are made available for general distribution. Favorable comment has been received from the Boston Medical Library, the Army Medical Library, and the Library of Congress, as well as from many private individuals. In all, ten such bibliographies have been published to date and it is proposed to continue the series at bi-monthly intervals.

## SCHOOL OF TROPICAL MEDICINE

Professor PABLO MORALES OTERO, Director

See the Report of the Director of the School of Tropical Medicine, published separately each year.

Respectfully submitted,

WILLARD C. RAPPLEYE, M.D.

*Dean*

*June 30, 1947*



# COLUMBIA UNIVERSITY BULLETIN OF INFORMATION

Forty-eighth Series, No. 44

October 23, 1948

## Report of the Dean of the Faculty of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1948



COLUMBIA-PRESBYTERIAN MEDICAL CENTER  
168TH STREET AND BROADWAY  
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# Columbia University Bulletin of Information

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October 23, 1948

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The series includes the Report of the President to the Trustees, and the Announcements of the several Colleges and Schools relating to the work of the next year. These are made as accurate as possible, but the right is reserved to make changes in detail as circumstances require. The current number of any of these Announcements will be sent upon application to the Secretary of the University.

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# FACULTY OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1948

*To the Acting President of the University*

SIR:

I have the honor to submit the annual report of the activities under the Faculty of Medicine for the academic year 1947-1948.

The registration of the School of Medicine was as follows:

First year . . . . .	114
Second year . . . . .	106
Third year . . . . .	110
Fourth year . . . . .	102
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Total . . . . .	432

The degree of Doctor of Medicine was awarded to 100 candidates on June 1, 1948.

There were 2,163 applicants for admission to the class beginning September, 1947. These applicants had prepared in 305 colleges and universities. The class admitted in September prepared in forty-five colleges. The graduating class of June 1, 1948, obtained internships in forty-five hospitals in all sections of the country.

There were about 2,800 applicants from which the first-year class scheduled for admission in September, 1948, was selected. Slightly more than two thirds of these applicants reside outside of New York City and about 53 percent live outside the state of New York and the New York metropolitan area. The applicants obtained their college preparation in more than 300 institutions. The 116 students accepted for admission received their preparation in sixty-two colleges and came from twenty-eight states. About one third are residents of New York City. Eighty of the 101 male students accepted are veterans. The average age of the civilian student accepted is about twenty years, whereas that of the veterans is about twenty-five years.

In the School of Public Health the registration was as follows:

M.P.H. candidates . . . . .	32
M.S. candidates . . . . .	74
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Total . . . . .	106

The registration in the School of Nursing was as follows:

First year . . . . .	112
Second year . . . . .	90
Third year . . . . .	105
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Total . . . . .	307

In the course for Occupational Therapists eighty students were registered. Fifty-one students were registered in the course for Physical Therapists.

The Dental School registration was as follows:

First year . . . . .	30
Second year . . . . .	31
Third year . . . . .	15
Fourth year . . . . .	46
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Total . . . . .	122

There were forty-nine special students registered in the Dental School.

In addition to the degree of Doctor of Medicine the following degrees were awarded during the year:

Med. Sc.D. . . . .	9
D.D.S. . . . .	42
M.P.H. . . . .	26
M.S. (Hospital Administration) . . . . .	29
M.S. (Biostatistics) . . . . .	3
M.S. (Public Health Education) . . . . .	3
M.S. (Parasitology) . . . . .	2
M.S. (Industrial Hygiene) . . . . .	5
B.S. (Nursing) . . . . .	59
M.S. (Nursing) . . . . .	1
B.S. (Occupational Therapy) . . . . .	9

In addition to the students enrolled under the Faculty of Medicine, there were fifty-three students registered under the Graduate Faculties of the University who took courses and advanced research work in the departments of the Medical School.

Ninety-four visiting scholars, from twenty-nine foreign countries, came to the School during the year for periods up to a full year of study.

It is gratifying to report that during the academic year eighty-eight of the medical students received scholarships averaging about \$370 per student. The Borden Undergraduate Research Award was given to Dr. Lothar Gidro-Frank, Class of June, 1948, for outstanding research work during his medical course. Dr. Mary S. Blakely, Class of June, 1948, was given the Janeway Prize, awarded to the graduate who, in the opinion of the Faculty, has ranked highest in efficiency and ability. The Dr. Harold Lee Meierhof Memorial Prize in Pathology was awarded to Mr. Seymour Perlin, Class of June, 1949. The Dr. William Perry Watson Prize in Pediatrics was awarded to Dr. Robert A. Shimm, Class of June, 1948. The Edwin G. Zabriskie Prize in Neurology was awarded to Dr. Anthony Iannone, Class of June, 1948. The Ella Maria Ewell Medal in Dentistry was awarded to Dr. Ivin B. Prince, Class of June, 1948. Dr. Nicholas J. Cava, Class of June, 1948, was awarded the Prize for Excellence in Pedodontics. He also received the Van Woert Scholarship Award. Dr. Arthur Zinn, Jr., Class of June, 1948, was awarded the Prize for Excellence in Operative Dentistry.

During the year death claimed two of the men who were largely instrumental in conceiving, constructing, and developing the Medical Center. President Emeritus Nicholas Murray Butler died on December 7, 1947, and Dean Emeritus William Darrach, on May 24, 1948. The Medical Center is in no small degree a monument to these two great leaders who implemented in this institution the highest ideals of patient care; the teaching of medical, dental, nursing, public health, and other professional students; and the highest form of medical research. Great as the physical facilities and resources of the Medical Center are, their even greater contribution was to the ideas and ideals of public service which the University and Hospital program envisage. These men have left an indelible influence upon generations of students.

It is with the greatest regret that we report the following deaths among the professorial group during the year:

- George M. Goodwin, Clinical Professor of Medicine, on July 12, 1947  
Hugh Auchincloss, Professor Emeritus of Clinical Surgery and Consultant, Presbyterian Hospital, on September 21, 1947  
Benjamin P. Farrell, Professor Emeritus of Orthopedic Surgery, on December 27, 1947  
J. Bentley Squier, Professor Emeritus of Urology and Director Emeritus of Urology Service, Presbyterian Hospital, on March 1, 1948  
Charles A. Elsberg, Professor Emeritus of Neurological Surgery and Director Emeritus of Neurological Surgery Service, Presbyterian Hospital, on March 18, 1948  
Otto Marburg, Clinical Professor of Neurology, on June 13, 1948.

As of June 30, 1948, Drs. Louis Casamajor and Edwin G. Zabriskie were retired, were granted Trustee appointments as Professors Emeritus of Neurology in the University, and were made Consultants in Presbyterian Hospital.

Among the promotions made during the year were those of:

- Charles Lee Buxton, Associate Professor of Clinical Obstetrics and Gynecology  
D. Anthony D'Esopo, Professor of Clinical Obstetrics and Gynecology  
Alexander B. Gutman, Associate Professor of Medicine  
Cushman D. Haagensen, Associate Professor of Clinical Surgery  
John J. Keating, Clinical Professor of Medicine (St. Luke's Hospital)  
Harrison L. McLaughlin, Professor of Clinical Orthopedic Surgery  
Gray H. Twombly, Assistant Professor of Clinical Obstetrics and Gynecology.

Effective July 1, 1948, Dr. Michael Heidelberger was designated Professor of Immunochemistry and promotions were given to:

- Hattie E. Alexander, Associate Professor of Pediatrics  
Robert P. Ball, Professor of Radiology  
James Bordley, Clinical Professor of Medicine (Mary Imogene Bassett Hospital)  
John Caffey, Professor of Clinical Pediatrics  
E. R. Coffey, Associate Professor of Public Health Practice  
Richard L. Day, Associate Professor of Pediatrics  
Moses Diamond, Professor of Dental Anatomy  
Herbert Elftman, Associate Professor of Anatomy

Joseph E. Flynn, Associate Professor of Pathology  
Virginia K. Frantz, Associate Professor of Surgery  
Alfred Gilman, Professor of Pharmacology  
Samuel Graff, Associate Professor of Biochemistry, assigned to Obstetrics and Gynecology  
Elvin A. Kabat, Associate Professor of Bacteriology, assigned to Neurology  
H. Houston Merritt, Professor of Neurology and Executive Officer of the Department of Neurology  
Beryl H. Paige, Associate Professor of Pathology assigned to Pediatrics  
Walter S. Root, Professor of Physiology  
John E. Scarff, Professor of Clinical Neurological Surgery  
Lawrence W. Sloan, Associate Professor of Clinical Surgery  
Jerome P. Webster, Professor of Clinical Surgery  
Edward V. Zegarelli, Associate Professor of Dental and Oral Surgery.

#### STUDENT HEALTH SERVICE

During the past year the responsibilities of the Student Health Service, under the direction of Dr. Albert R. Lamb, Jr., were increased to provide medical care for all students registered under the Faculty of Medicine, with the exception of the undergraduate nurses. This has added considerably to the routine activities and over-all load of the Service.

The activities of the Student Health Service for the year 1947-1948 included complete physical examinations for all first-year and third-year medical students, first-year and third-year dental students, and students in occupational and physical therapy. Daily consultation hours were held throughout the academic year for medical care, immunization procedures, various tests, and directing students for specialty care, either to the Vanderbilt Clinic or to individual members of the professional staff.

Plans have now been completed for an expansion of the Student Health Service to include hospitalization for all students through employee contracts with the Associated Hospital Service and to cover all minor clinical charges which in the past were made directly to each student. The whole program is covered by a Student Health Service fee. The hospitalization insurance will give each student an opportunity to take out a family contract on an employee basis with the Associated Hospital Service.

The tuberculosis control program will be developed further next fall

with the introduction of B.C.G. vaccine, which will be offered on a voluntary basis to all tuberculin-negative first-year medical and dental students. This step will be taken in coöperation with the New York State Department of Health.

#### EMPLOYEE MEDICAL SERVICE

Plans have now been arranged for an employee medical service, beginning in the fall, for all clerical and technical personnel on the University payroll at the Medical Center. Funds have been provided by the Trustees to cover a medical service which includes daily office visits, free physical examinations, and periodic check-ups on all individuals. The medical services for employees through their own physicians or the Vanderbilt Clinic will be paid for by the individual.

#### THE GRADUATE AND POSTGRADUATE PROGRAMS

The program of instruction in the basic medical sciences was continued as an integral part of the residency training in hospitals affiliated with Columbia University. This year the program included twenty individual courses in six basic science subjects and other fields more closely oriented to special clinical interests. The generous support of the W. K. Kellogg Foundation has been continued.

During the academic year 1947-1948, two hundred residents from the Presbyterian Hospital, Bellevue Hospital, Hospital for Joint Diseases, Hospital for Special Surgery, Montefiore Hospital, Mount Sinai Hospital, Roosevelt Hospital, St. Luke's Hospital, and Woman's Hospital registered with Columbia University for 480 individual courses. About 30 percent of these devoted full time out of their residency schedules to the basic science program. The remainder worked their courses in with their hospital program.

Although the size of this program has been limited because of the extra burden it places upon our full-time staff, it has been of interest for us to note what a remarkable cross section of medical education in the United States this group of two hundred residents represents. Eighty percent received their basic training in forty-three American universities



outside of New York City and fifteen foreign universities of known excellence.

The basic science subjects—anatomy, bacteriology, biochemistry, pathology, pharmacology, and physiology—remain the heart of the program. Advanced presentations of the subjects are given in seminar, lecture and demonstration form, with sufficient flexibility to encourage student interest in correlation with clinical problems. However, as the tendency continues to segmentalize medical thinking into specialty frames of reference, the interest of the residents in broad fields of the basic sciences is similarly responding to this change. Particularly in the more limited specialties, steps have been taken to present only the aspects of basic sciences clearly applicable to the special field of clinical interest. These programs are being prepared for presentation by members of the clinical faculties.

At the same time several of the affiliated hospitals with excellent laboratories and full-time laboratory staffs are already developing their own programs in pathology, and to some extent in bacteriology and biochemistry. This is in line with the trend, indicated in last year's Report, which fulfills in a more practical way the major purpose of these courses as integrated into the residency experience.

A postgraduate program of training for general practitioners and specialists is offered under the supervision of the Faculty of Medicine of Columbia University. In the short courses offered at the Medical Center, Mount Sinai Hospital, Montefiore Hospital, Margaret Hague Maternity Hospital, and Bellevue Hospital this year, 970 physicians were enrolled. About two thirds of these were veterans. This represents the slight decline in registration anticipated last year. However, the relatively large number of non-veterans enrolled, offers a continued challenge which the program will seek to meet.

#### DEVELOPMENT PLANS

Progress can be reported on the plans for the future development of the Medical Center. The general program outlined in last year's report has been approved by the University and Hospital authorities. The only

important modification in the plan is the inability to proceed with the private-patient pavilion because of the excessive cost of construction. After thorough discussion by the Medical Board of the Presbyterian Hospital, an alternate program has been worked out which permits the moving of the New York Orthopaedic Dispensary and Hospital to the Medical Center, the conversion of the seventh floor of the Presbyterian Hospital into multiple-bed private services and a contagious-disease unit. Plans have been approved for: the expansion of the surgical facilities, and the transfer of certain semi-private beds to the regular ward services in the Vanderbilt Clinic; numerous alterations in the Babies Hospital, the Neurological Institute, and the Eye Institute; the expansion of X-ray and radiotherapy, dining rooms, kitchens, and other facilities.

The alternate program, as outlined above, must be integrated with plans for building additional floors on the Vanderbilt Clinic. This space would be used to expand the present laboratory facilities for cancer research. The contingent appropriation of one million dollars from the United States Public Health Service is available if that amount can be matched. These additional laboratories are essential in the development of the research programs of the University, and at the same time will permit expansion of the animal-care facilities which is an essential feature of the continued progress of the School.

The Francis Delafield Hospital is expected to be available for occupancy in 1949, and hence its staffing is now being considered by the Faculty. Plans for the Public Health Center along Riverside Drive have been modified by the omission of the Hospital for Tropical and Contagious Diseases. The amended agreement with the City is now ready and it is hoped that progress with that unit, so important to the City of New York as well as the University, may go forward without delay.

The uncertainty over the continuity of the School of Tropical Medicine was removed during the year. Columbia was invited by the authorities in Puerto Rico to continue, with a substantial reduction in the University's financial obligations, on the basis of coöperation established in 1926. The acceptance of this offer is very gratifying since the affiliation holds high promise of constructive, investigative, and instructional progress in

tropical diseases, and affords continued opportunities for strengthening the medical and public-health programs in Puerto Rico.

During the past year an affiliation was arranged between the Institute for the Crippled and Disabled and the University. Under this agreement the University was given the responsibility of nominating the professional staff of that institution. The plan has resulted in the development of a substantial program for the rehabilitation, re-education, and vocational training of handicapped individuals. This is a highly important contribution toward meeting the numerous urgent problems of these individuals especially since, without aid in retraining and re-education, it is difficult for them to be self-sufficient and to carry out essentially normal activities in a community.

#### SELECTIVE SERVICE

The Congressional passage of Public Law 759, known as the Selective Service Act of 1948, introduces a new national policy which has wide ramifications in the social, economic, and educational life of the nation. Among the many considerations, there are certain impacts upon the medical profession, medical education, and college preparation for professional studies. Restriction of the draft to individuals under twenty-six years of age has introduced the immediate pressing problem of supplying the Army, Navy, and Air Force with medical officers, since there are relatively few individuals who complete their medical training before reaching the age of twenty-six.

The earlier wording of the bill included a provision for the induction of physicians, dentists, and veterinarians above the twenty-six year limit. This would have made possible the selective recruitment of well-qualified specialists and mature physicians as medical officers. Whether or not a sufficient number of well-qualified medical men will volunteer for military service in peacetime remains to be seen. It is obvious, however, that it will not be possible for the country to build up its armed forces without providing competent medical care for the several million young men called upon to discharge their responsibilities to their country.

The Selective Service Act provides for the deferment of a certain

number of college students desiring to study medicine. These, together with women and ex-servicemen, will insure a continuous supply of medical students and, hence, of medical officers for the government services and physicians for the civilian population.

In any plan for supplying the armed forces with medical personnel, the program for selection and induction should be formulated so as not to interfere with the proper training of the physician. It is hoped, too, that this program will not damage the structure of medical education which has been built up in this country during the past twenty-five years. Young men should be permitted to complete their hospital training before they are called into the Service. In this way the Army, Navy, and Air Force would have better medical officers than were the men to be drafted at the end of their internship. If the men were taken at the point of completion of hospital training, the supply of properly qualified medical officers could still be maintained. Curtailment of the medical course would be undesirable and would not increase the number of medical officers available. Extra doctors could be obtained immediately by curtailing the hospital period of training but the effectiveness of this measure would be only temporary and the action could be taken only once.

The Services are making every effort to increase the attractiveness of their professional activities in order to induce medical men to volunteer. Young medical graduates have been reluctant to enter the medical military services in peacetime because at the present time a large part of the duties of medical officers are nonmedical, administrative functions. However, the Army, Navy, and Air Force are essential instruments of national policy and must have adequate and well-qualified medical officers. The inducements of the military services can be made much more attractive through better professional opportunities and the development of sound plans for progressive advancement of medical personnel.

#### COMMUNITY MEDICAL SERVICE

One of the major problems of over-all medical care for the country is the closer integration between methods of practice in a community and objectives of medical education, the latter being concerned with the preparation of physicians for the future. Universities and their medical schools are concentrating their efforts largely on training qualified men

and women for community medical services with emphasis upon preventive medicine and comprehensive medical care for the entire family. It is generally believed that modern medical services cannot be fully provided by the individual physician working alone, since no individual can possibly master all fields of medical care. Specialization and coöperative responsibility for the care of the individual is frequently required. Hence, the growing emphasis is upon group practice as the modern and most satisfactory method of medical care. This, however, does not shift the major responsibility from the family and the personal physician. In fact the basic element of any group practice must be the family and the personal physician working in collaboration with specialists.

Because of present day economic problems it is impossible for many families to pay for unpredictable and uncertain illnesses. The principle of prepayment insurance is now well established. This principle must be applied to medical services as it has been to hospital care, unemployment insurance, old-age pensions, and various other phases of social security. While many elements of group practice are now emphasized in most medical schools, the young physician upon graduation still finds little or no chance to practice medicine in the coöperative manner he has been taught. For most graduates the only opportunity lies in individual, competitive practice.

The evolution of adequate programs of comprehensive prepayment medical care for individuals and their families has been slow and largely unsupported by the organized medical profession, whose policies continue to be almost exclusively determined by those who are primarily concerned with retaining the *status quo*.

#### NATIONAL SCIENCE FOUNDATION

The failure of the last Congress to establish the National Science Foundation was a great disappointment. The Federal Government, through its multitudinous agencies, is developing its own activities in various fields of research and making more grants-in-aid. However, there is need for a central coördination of basic policies in relation to governmental support of research.

While grants for specific purposes, whether from government, founda-

tions, industry, individuals, or other sources, have much merit, it is absolutely essential to the future of this country, as far as research and the training of scientific personnel is concerned, that money be made available for the general support of the universities, where future generations of professional workers are trained. Today, universities are the major source for supplying men for the basic research so necessary for future progress. With the increasing cost of medical education and the need for advanced training in a wider range of related activities, proper financial support of medical schools is an investment to insure their fullest contribution to public service in the future.

## DEPARTMENT OF ANATOMY

Professor SAMUEL R. DETWILER, Executive Officer

The Department suffered two losses by resignation during the past twelve months. Assistant Professor Sherwood L. Washburn accepted an appointment at the University of Chicago as Associate Professor of Anthropology, and Associate Professor Raymond C. Truex left at the end of the academic year to accept the professorship of Anatomy at Hahnemann Medical College. Dr. Charles A. Ely, of the University of Wisconsin, has been appointed Instructor on a full-time basis. Professor Moses Diamond has been promoted from Associate Professor to full Professor of Dental Anatomy.

The course in Gross Anatomy was reduced from 360 to 300 hours and condensed into four and one-half months in contrast to the previous nine-month period. The Gross Anatomy staff had the capable and full-time voluntary services of Drs. Hendrik Rijnders, Eugene Kenney, and Walter Green. Professor Truex, who is in charge of the course, was relieved of much of his teaching in Gross Anatomy in order to give the course in Medical Neuroanatomy during the sabbatical leave of Professor Adolph Elwyn.

Professor Truex and Mr. Carl Kellner have completed an atlas on the head and neck which is to be published by the Oxford University Press.

Professors Philip E. Smith and Wilfred M. Copenhaver have given a great deal of their time during the year to the completion of an extensive revision of *Bailey's Textbook of Histology* (XII edition).

The second edition of *Human Neuroanatomy*, by Professor Elwyn, was completed before his sabbatical leave and published in March, 1948. A Spanish translation of the first edition was published last December in Argentina.

Professor Diamond, with the collaboration of Professor William M. Rogers and Mr. Kellner, has completed a second revision of his book on dental anatomy.

Under the program of graduate medical education, sixteen courses were offered to residents from affiliated hospitals. The total registration in these courses numbered 223. In the administration of this residency program, the Department is indebted to Dr. José M. Ferrer, Jr., who has carried on his responsibilities with efficiency.

The course in Anatomy attended by seventy-five students of physiotherapy and occupational therapy was conducted by Professors Herbert O. Elftman and William B. Atkinson. The instruction to nurses and dental hygienists has been given by Professor Rogers.

The elective course on the eye and ear, given by Professors Samuel R. Detwiler and George K. Smelser, was attended by forty-eight students, thirty-one of whom were second-year medical students.

Professor Rogers, with the collaboration of Dr. James Harrison, has developed a system of square-wave-pulse generators which will facilitate the electronic studies he and Dr. Henry Aranow, Jr., of the Department of Medicine, are making on myasthenia patients. Professor Rogers is using audio and visual recordings to evaluate sounds associated with congenital heart disease. Pre- and postoperative records are made on surgical cases of Professor George H. Humphreys, II, of the Department of Surgery. Professor Rogers is continuing his long-term investigations of the interrelationship between form and function in bone.

Professor Elftman has conducted an intensive investigation of the effect of sex hormones on the adrenal cortex. Professor Dan H. Moore has continued his investigations on the factors which influence electrophoretic patterns. With Professor Charles L. Buxton and Dr. R. Martin du Pan, the development of serum proteins in human fetuses and infants has been traced and compared with that of maternal sera. In collaboration with the Departments of Pathology and Medicine, and the Childrens Hospital of Philadelphia, Professor Moore has continued investigation on the role of lymphocytes in antibody production and, by means of the ultracentrifuge, he has described a new low-molecular-weight protein from antigenically stimulated lymphocytes with agglutinin activity.

Professor Copenhaver, in collaboration with Professor Detwiler, has completed an investigation on the effects of sulfonamides on the development of amphibian embryos. Further investigations on the effects of thiouracil on development are being continued. Professor Copenhaver has completed a term of service as Secretary of the New York Section of the Society for

Experimental Biology and Medicine. Professor Truex is engaged in a cytological study of sympathetic ganglia surgically removed from hypertensive patients.

Professor Atkinson has advanced his program on the histochemical investigations of normal and pathological processes in the female reproductive tract. The work has been done mainly in collaboration with various members of the Department of Obstetrics and Gynecology and has been supported to a considerable degree by a grant-in-aid from the Jane Coffin Childs Memorial Fund for Medical Research. During the past summer Professor Atkinson received an appointment as Research Associate in Zoölogy at the University of Wisconsin. Professor Louis Levin has continued investigations relating to the endocrinology of reproduction. A program on the purification and identification of the urinary gonadotrophin of post-menopausal women is well under way.

Professor Earl T. Engle has continued his work on the human endometrial cycle and is now summarizing the material gathered over the last ten years. Also progressing, are studies on the human testis in hypogonadism and in sterility. Professor Engle, with Professor Charles L. Buxton of the Department of Obstetrics and Gynecology, has continued studies on the effects of gonadotrophin and of progesterone on the second half of the menstrual cycle. Professors Virginia K. Frantz of Surgery, Edith H. Quimby of Radiology, and Dr. Joseph Jailer of Medicine, are progressing in the studies on the uptake of radio active I<sup>131</sup> and of phosphorous p<sup>132</sup> in the monkey.

Doctor Joseph Jailer has continued his studies of estrogen metabolism, both on rats and on clinical material. Professor Harry H. Shapiro served as visiting lecturer in Postgraduate Anatomy at Tufts College and at the New York State Institute of Arts and Sciences. He is actively engaged with investigations involving the transplantation of developing teeth in the cat.

Dr. Dorothy M. Kraemer assumed a heavy burden in teaching the course in Gross Anatomy. She is carrying out some investigations on the development of the amphibian eye and the limb.

Professor Moses Diamond is continuing his studies on the growth and development of the skull. The work is being done in collaboration with Dr. Theodore Zucker of the Department of Pathology.

Professor Edmund Applebaum has carried a heavy teaching program in undergraduate and graduate anatomy courses for dental students. He has devoted considerable time in organizing a new course in histology and embryology for oral hygienists. He has completed an investigation on tissue changes in dental caries.

Professor Philip E. Smith has continued his investigation on the role of the endocrine glands in pregnancy in primates.



Professor Detwiler has continued his program of analyzing the motor ability of amphibians following various surgical alterations upon the embryonic brain. He has also been engaged in further studies on the comparative anatomy and function of the eyes of vertebrates. In collaboration with Mr. Carl Feind, studies have been made on vestibular loss in amphibian larvae following treatment with streptomycin.

## DEPARTMENT OF BACTERIOLOGY

Professor A. RAYMOND DOCHEZ, Executive Officer

Twenty-one students, mostly graduate doctors, took the course in Medical Mycology given by Professor Rhoda W. Benham. Nine graduate students were candidates for the degree of Doctor of Philosophy in Bacteriology, and three received this degree in June.

During the year the Diagnostic Laboratory made bacteriological and serological examinations of 58,805 specimens. The amount and character of the work were essentially the same as for the preceding year.

Studies on experimental poliomyelitis in monkeys and rodents were continued by Professor Claus W. Jungeblut. In collaboration with Professor John R. Paul and Dr. Joseph L. Melnick of Yale University, comparative immunological tests were begun to determine the relationship between the Columbia and Yale strains of SK mouse-adapted poliomyelitis virus. Preliminary work, started last year with the Eli Lilly Research Laboratories, on the production of a murine poliomyelitis virus vaccine has been continued. Experiments were also undertaken to investigate the possibility of utilizing the interference phenomenon between simian and murine virus for diagnostic purposes. With Miss Audrey Fjelde, serological tests were carried out which confirmed the antigenic relationship that exists between SK and MM murine poliomyelitis virus on the one hand, and the recently isolated virus of so-called "encephalomyocarditis" on the other. Under Professor Jungeblut's direction, Mrs. Alice W. Knox has completed one phase of her study on the increased susceptibility of pregnant mice to poliomyelitis infection.

Professor Beatrice C. Seegal, in association with Drs. Margaret Holden and Samuel Raymond, and with the aid of grants from the John and Mary R. Markle Foundation and the United States Public Health Service, has carried out work on a number of antibiotic substances derived from acetyl acrylic acid. In association with Drs. Emily N. Loeb and Abbie I. Knowlton of the Department of Medicine, and with Dr. Herbert C. Stoerk of the Merck Insti-

tute for Medical Research, Professor Seegal has continued her studies on the role of DCA in fortifying the action of antikidney serum in the rat.

Studies by Professor Theodor Rosebury, Drs. Ada R. Clark, and Saul Frances on the anaerobic bacteria of mucous membranes are continuing under grants from the United States Public Health Service and the John and Mary R. Markle Foundation. Nearly two hundred pure cultures of several varieties each of spirochetes, bacilli, vibrios, and cocci have been isolated; and their preservation by freezing in CO<sub>2</sub>-ice has proven to be satisfactory. Adequate methods for pure cultivation of the more fastidious of these bacteria—notably spirochetes and vibrios—have been developed.

Studies were continued by Professor Harry M. Rose on the antiviral activity of secretions of the human respiratory tract. The observations were confirmed and extended that the sputums of different individuals contain varying amounts of a substance that will inhibit the agglutination of erythrocytes by influenza virus, and will also neutralize the viruses of influenza, herpes simplex, and vaccinia in animals and chick embryos. Together with Dr. Leslie A. McClintock of the Department of Radiology, work was begun in March, 1948, in an attempt to tag viruses with radioactive elements. It has been found from experiments with radioactive phosphorus and influenza virus in chick embryos, that inorganic phosphorus is not directly utilized for synthesis of virus. Professor Rose has found that triphenyltetrazolium chloride, serves as a simple and reliable indicator of the viability of embryonic tissue.

The diazotizable amine, which Professor Charles L. Fox, Jr., discovered to be formed in vitro during sulfonamide bacteriostasis, has been shown by other investigators to be an intermediate in the bacterial synthesis of purines and also a component of folic acid and its antagonists. Another but related diazotizable amine produced by sulfonamide resistant staphylococci is being studied with Dr. Harold Baer. Professor Fox's investigations of sodium and potassium metabolism in nephrosis have been continued. Aided by a grant from the United States Public Health Service, the electrolyte changes in systemic infections are being explored. The importance of unimpaired tissue cell metabolism was investigated in dogs.

Dr. Margaret Holden completed an immunological study with various fractions of the typhoid bacillus prepared by Dr. Thomas C. Nelson, Lecturer in Biophysics at Columbia University. In collaboration with Professor Seegal, the reaction of sensitized cells to their specific antigens, as revealed by tissue culture studies, is in progress. The study of the comparative virulence of *Cryptococcus neoformans*, with Professor Benham of the Department of Dermatology, has been continued.

Dr. M. Maxim Steinbach investigated the effect of certain new chemical agents on the multiplication of the tubercle bacillus in vitro and in vivo. The

capacity of para-amino-salicylic acid to inhibit in high dilution the growth of tubercle bacillus in Dubos' medium was demonstrated. Extensive streptomycin sensitivity and resistance tests were also carried out with cultures of tubercle bacilli obtained from Montefiore Hospital. Dr. Samuel Raymond has prepared a number of esters of acetylacrylic acid and related compounds which have shown antibacterial action.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

No important changes have taken place in the staff during the year. The program of instruction for medical and dental students has remained unaltered. However with the increased return of veterans to graduate studies in biochemistry, the amount of time devoted to the instruction of students in the Faculty of Pure Science has markedly increased.

Professor Clarke has nearly completed his time-consuming labors as Chairman of the Editorial Board of the monograph on the "Chemistry of Penicillin" to be published this fall under the auspices of the Office of Scientific Research and Development, Washington, D. C., and the Medical Research Council, London, England.

Professor Edgar G. Miller, Jr., has again acted as responsible investigator for the program of amino-acid analysis of pure proteins, organized by Dr. Erwin Brand, supported by the Navy. He also has supervised the work of Dr. Victor Ross on the development of protamine-diphtheria-toxoid preparations.

In collaboration with members of the Department of Medicine, Professors David Rittenberg and David Shemin have continued their studies, with the aid of isotopes, on the dynamics of the human red cell in normal and pathologic conditions. The cells of patients with sickle-cell anemia differ from the normal in that they are able to synthesize the blood pigment from glycine in vitro. This is not the case with normal blood. With Dr. Irving M. London, of the Department of Medicine, they have studied the isotype concentrations in the stercobilin of subjects fed with isotopically labeled glycine. The same investigators have found that avian erythrocytes, which differ from mammalian red cells in that they contain a nucleus, can synthesize protoporphyrin from glycine and acetic acid in vitro just as is the case with the blood in sickle-cell anemia.

Dr. David Sprinson, a member of Professor Rittenberg's group, has studied the mechanism of the biological deamination of amino acids and has found that the  $\alpha$ -hydrogen atom of leucine is labilized by an enzyme present in heart

muscle. Professor Rittenberg and his group have found that not only acetic acid and ethanol but acetone can be utilized for the biochemical synthesis of cholesterol.

Professor Shemin, at the invitation of the Swedish Medical Research Council, spent four months at the Karolinska Institute of Stockholm organizing an isotope research group. This group collaborated there with Professor Einar Hammarsten on the biosynthesis of purines. After his return Professor Shemin studied the chemical mechanism of the biosynthesis of protoporphyrin; the metabolism of tryptophane, serine, glycine, and histidine; and the mechanism of transamination.

Professor Erwin Chargaff has continued his work on lipoproteins and in blood coagulation. In collaboration with Dr. Ernest B. Vischer, a visiting scientist from Switzerland, he has undertaken the study of the chemistry of nucleic acids. He has also directed the work of graduate students on the enzymatic oxidation of inositols, the biological significance of desoxypentosenucleinases and their specific cellular inhibitors.

Professor Maxwell Karshan, who is responsible for the instruction of dental students, has continued his biochemical studies of dental problems. Dr. Zacharias Dische, with the support of the Donner Foundation, has continued his studies on the metabolism of nucleotides and on prosthetic groups of tissue proteins.

## DEPARTMENT OF CANCER RESEARCH

Professor WILLIAM H. WOGLOM, Executive Officer

Professor Milton J. Eisen has pursued his studies on the relationship of cancer, especially cancer of the breast in the rat to hormones and the growth properties, and possible immunizing properties of tumors of different tissues in inbred strains of rats.

Professor Gray H. Twombly, now associated with the Department of Obstetrics and Gynecology, has continued his work with hormones linked to radioactive materials and experimental testicular neoplasms.

Professor Jacob Heiman has enlarged his experiments on the relationship of hormone analogues to tumors. He has completed his observations on the effects of antireticulocytotoxic serum of Bogomolets on mice of strains with a high incidence of spontaneous mammary cancer.

Professor Bernard S. Oppenheimer is now enlarging his observations on the tumor-producing properties of cellulose implanted in the subcutaneous tissue of the rat by testing this compound in mice as well as other synthetic materials in the rat. Professor Edward L. Howes, of the Department of Surgery, has continued work on experimental gastric tumors in rats.

Dr. Louis Herly has made further observations on the fluorescence of blood serum of patients having cancer with a view to obtaining a test of diagnostic value.

Dr. Richard Jahiel has made further observations on immunologic phenomena encountered with transplantable tumors and the effects of anaphylactogenic agents on local tissue reactions.

## DEPARTMENT OF DENTAL AND ORAL SURGERY

Professor BION R. EAST, Executive Officer

The year proved to be one of continued activity and development for both the School of Dentistry and the Dental Department. The program of instruction was further developed to fit the student to accept his responsibility as a practicing dentist among the various health service professions. The research activities of the Department were extended and our affiliations with hospitals strengthened. As time passes, the wisdom of integrating dental education with medical, public health, and nursing education is well established. The demand for dental training and education at this School continues to grow both in the volume and geographic distribution of applications in all programs. Out of a group of 241 applicants from nineteen states, two territories, and four foreign countries, thirty students were admitted to the first-year class of September, 1947. The students in the undergraduate dental classes were residents of eight states and British Guiana, Hawaii, India, Puerto Rico, and Sweden. The dental hygiene students were residents of seven states and Puerto Rico. The residential distribution of certificate students included nine states and six foreign countries. These enrolled in the non-credit postgraduate courses came from fifteen states and two foreign countries.

### DENTAL CLINIC

The Dental Clinic of the School functioned during the year under the direction of Professor Irwin L. Hunt. The magnitude of this operation is indicated by the following data:

During the twelve month period, June 1, 1947, to May 31, 1948, the Dental Clinic admitted a total of 12,326 patients. Of this number 6,487 were new admissions and 5,839 were readmissions of former patients. The X-ray Division made 33,070 x-ray exposures. The total visits to all clinics were 41,707.

### DIVISION OF ORAL DIAGNOSIS

Under the direction of Professor Lewis B. Stowe, the Division of Oral Diagnosis satisfactorily performed its functions in the undergraduate program

and expanded the Division's postgraduate activities. Dr. Ferdinand Tuoti gave valuable service to the Division as a voluntary clinical assistant. Dr. Nicholas DiSalvo, a Fellow in the Department of Physiology, also assisted in the Division during the year.

Members of the Division were in demand to present papers and discussions before dental societies and hospital staffs. Dr. Zegarelli served as faculty advisor for the Student Council and for *Dental Abstracts*. Dr. Rosenstein served as faculty advisor for the *Dental Columbian*, The William Jarvie Society, and was a member of the Advisory Committee of the *Columbia Alumni News*.

The Comprehensive Diagnosis Seminar, inaugurated last year, was continued through the entire 1947-1948 school year. The weekly x-ray reading exercises and examinations, previously held on a voluntary basis, were made a requirement for members of the Senior class as recommended in last year's Report.

#### DIVISION OF OPERATIVE DENTISTRY

Professor Carl R. Oman continued to head the Division of Operative Dentistry. The staff members were concerned with research as well as teaching undergraduate and postgraduate students.

An outstanding activity of this Division is its Study Club directed by Professor Oman. This leads to uniformity of teaching as well as the introduction of new teaching techniques. The remainder of the *Operative Syllabus* is ready for the printer and it is hoped will be in use beginning in September. Dr. Joseph Colaneri has devoted all of his school time to making the drawings for this publication.

A number of research projects have been started and some of them are well under way. One of particular interest is the study of the use of dermerol in operative dentistry. Dr. Harold Sherman is coöperating with Professor Ziskin and his staff on this project.

The clinical work of the Senior class during the past year has been of the usual high grade and, with further development of our young teachers, even higher standards can be established and maintained.

#### DIVISIONS OF PERIODONTIA, CLINICAL RESEARCH, AND POSTGRADUATE STUDIES

Professor Daniel E. Ziskin headed the Divisions of Postgraduate Studies, Periodontology, and the Clinical Research Laboratories. The postgraduate certificate program was broadened to include courses in oral diagnosis, radiography, and pedodontics. All courses were well attended. As a result of the instruction given in Scientific Methods five studies in major fields of investigation are being pursued by certificate students. A stimulative effect is also

seen in the fact that one student applied for and received a National Institute Research Fellowship. Another student is in the process of making application for such a fellowship to obtain support for future studies. Two student papers written in fulfillment of the requirements have been published, and a third is being prepared for publication.

The Periodontia Division was chiefly concerned this year with broadening the scope of its instruction and placing emphasis on the consideration of systemic causes and treatments, rather than on the purely technical concepts of etiology and treatment. Studies dealing with the problem of producing transient bacteremias by manipulation of the gingival tissues were begun. Members of the Periodontia staff were engaged in extensive extracurricular activities including lectures, scientific exhibits, study courses, and clinical research reports, given both locally and out of town.

Professor Frank E. Beube has been conducting a study concerned with the effects of fibrin foam and a calcium powder on the repair of root surfaces of the teeth of dogs denuded of their cementum. He is also engaged in a problem dealing with the repair of cementum by means of placing segments of the roots of extracted human teeth denuded of their cementum in contact with the femurs of dogs from which the periosteum has previously been scraped. A third experiment, employing radioactive strontium in cementum repair, was begun. Professor Saul Schluger has devised a new surgical method for the elimination of periodontal pockets. This technique has proved to be more effective than those used in the past.

The clinical research laboratories are becoming a center for investigation for both staff and students. Their facilities are being used in conjunction with research programs of the various clinics in the School as well as for independent experimentation. Some of the studies completed this year or still in progress may be briefly described as follows:

Studies dealing with caries activity tests, by Dr. Irwin D. Mandel with the Divisions of Orthodontics and Oral Diagnosis coöperating; a study aimed at the protection of the tooth enamel against the various factors capable of producing decay, by Dr. Harold Sherman, the Division of Operative Dentistry coöperating; the use of analgesics in dentistry is being investigated, by Drs. Sherman and William J. Miller with the coöperation of the Restorative Division; a study using phonetic and nonphonetic techniques in determining rest position, vertical dimension, and freeway space, by Drs. Lester Winter and Nicholas A. DiSalvo with the coöperation of the Prosthetic Division; a study investigating the dimensions and contours of the palates of trained operatic singers in comparison with a control group, by Dr. Winter; a clinical study to test the effects of glycerite of hydrogen peroxide mouth wash in the oral cavity by Drs. Mandel and Henry I. Nahoum with the coöperation of the

Periodontia and Oral Surgery Divisions; a clinical and laboratory study dealing with transient bacteremias following oral surgical procedures, the Oral Surgery Division coöperating; a series of clinical and laboratory studies of chronic oral lesions—psychiatric interview by Dr. Oscar Pelzman, physical examinations by Dr. Frederick K. Heath, clinical aspects of the mucous membrane lesions, Drs. Herbert F. Silvers and Austin Kutcher, the periodontal tissues, Drs. Benjamin Tenenbaum and Henry I. Nahoum; animal experiments dealing with nutritional and metabolic problems, Drs. George Stein and David A. Dragiff (the project is under the direction of Professors Daniel E. Ziskin and Maxwell Karshan); study on hand-piece sterilization is being conducted by Dr. Simon Lifton and Mr. Julius Jussim.

#### DIVISION OF ORAL SURGERY

In the past it has been customary for the Division of Oral Surgery to delegate all formal teaching to members of the professional staff. However, during the academic year of 1947-1948 this custom was modified by the Division Head, Professor Maurice J. Hickey, to permit instructors to share the responsibility of lecturing. Third-year surgery lectures were given by Dr. William A. Savoy. Drs. Alvin Nathan and Boaz Shattan shared the responsibility of the fourth-year surgery lectures with Professor Adolph Berger. Professor Byron Stookey of the Department of Neurology discussed the problem of trifacial neuroglia with the fourth-year class.

Surgery seminars, abandoned because of the accelerated program, were reinstated. Clinical investigation in the use of absorbable hemostatic agents was continued under the direction of Dr. Nathan. It has long been known that transient bacteremia may follow the extraction of teeth. A clinical investigation to determine the effect of preoperative penicillin on this bacteremia is being carried out by the postgraduate students in oral surgery. A comprehensive plan designed to improve the teaching of oral surgery to undergraduate students has been presented by Dr. Fred Rothenberg.

#### DIVISION OF PROSTHETICS

The past year has been one of progress and continued harmonious effort under the leadership of Professor Gilbert P. Smith. Regular undergraduate teaching assignments have demanded the full time of most of the staff. Work on the prosthetic syllabi has been continued and mimeographed copies have been furnished to students at the completion of each section.

A highlight in the year's activities was the establishment, by Mr. H. James Stern, of The Isidore Stern Memorial Gift for Comparative Study of Partial Dentures. Dr. John J. Lucca has been actively engaged in this project for the past year.



New members joining the prosthetic staff during the year were: Dr. John J. Lucca, Research Assistant in Dentistry and Dr. Louis G. Haase, Clinical Assistant. Dr. Howard Arden, Assistant in Dentistry, returned after two years in the service.

Professor Harry A. Young resigned to head the Prosthetic Division at the University of Washington. His departure will be keenly felt for he has been a most able and conscientious teacher.

Members of the prosthetics staff were in demand as lecturers and clinicians by many professional organizations and they responded generously in clinics and meetings of importance throughout the country and abroad. Professor Max A. Pleasure served as leader and member of a dental teaching team which conducted a series of two-week refresher courses for dentists assembled at a displaced persons camp near Munich, Germany, and at the Eastman Dental Clinic in Rome, Italy. Among these students were dentists representing fourteen European countries.

#### DIVISION OF ORTHODONTICS

The Orthodontic Division continues its path of progress under the direction of Professor Arthur C. Totten. The practice of accepting one class of students a year, begun in September, 1947, has already proven beneficial. The curriculum has been revised and strengthened for better teaching and the assurance of more adequate service to the public by our graduates.

The division has been fortunate in adding to the staff an exceptional and capable teacher, Dr. Clifford Whitman. Dr. Nicholas Ippolito, a former student instructor, too, has proven his merits and has received a University appointment.

The teaching of prevention and correction of simple types of malocclusion and adult orthodontics for restorative procedures to the undergraduate students have been most favorably received. This type of service by the general dental practitioner is rapidly spreading throughout the profession.

Lectures in the fundamentals of orthodontics and technical instruction in the twin wire mechanism by Dr. Joseph E. Johnson of Louisville, Kentucky, assisted by Drs. John Dolce, George Crozat, Joseph Eby, Henry Barber, Clare Madden, and Franklin Squires was offered November 30 to December 6, 1947. Thirty students attended.

The Anatomy Department and the Orthodontic Division are continuing their research in problems of the temporo-mandibular joint.

The Division is coöperating in an investigation of the effects of malocclusion on speech, with the Graduate School, Speech Pathology Department, Teachers College; and with the Caries Research Project in the investigation of orthodontic treatment to dental caries.

The Division held a one-day seminar and five evenings of "Information Nights" for the members of the Columbia University Orthodontic Alumni Society. These meetings are always exceptionally well attended, with members coming from various parts of the United States and Canada. The annual Orthodontic Division dinner was held on November 11, 1947. Dr. William K. Gregory, Curator of Comparative Anatomy at the American Museum of Natural History, was the speaker of the evening.

Contributions of the staff in the literature of clinical and scientific dentistry have been generous and significant. Members of the staff have served in an official capacity in numerous dental organizations.

#### DIVISION OF PEDODONTICS

One hundred and sixty-one children were admitted as patients to the Pedodontic Clinic with the number of visits totaling 1,653. This year the Division was fortunate in having five voluntary clinical assistants in addition to Professors Solomon N. Rosenstein and Ewing C. McBeath, Division Head, in charge of the clinic. This assured individual instruction, so essential for the successful clinical teaching of pedodontics.

Good coöperation was experienced from the public and parochial schools; consequently there were few broken appointments. The ages of patients ranged from three to ten years, the greatest number representing the age group from five through nine years.

The Division is still adding models and colored lantern slides to its supply of teaching material. Professor McBeath continued his research studies and collecting of material pertaining to agenetic missing teeth in children. Professors McBeath and Rosenstein contributed generously to outside activities, clinics, and publications during the past year.

#### DIVISION OF DENTAL HYGIENE

The course for dental hygienists registered twenty-two students for the class of 1947-1948. This class is the first of the two-year curriculum. The students were enrolled from seven states and Puerto Rico. Fourteen candidates enrolled with the following advanced education:

Bachelor of Science . . . . .	2
2-3 years of college . . . . .	5
1 year of college . . . . .	7
Veterans . . . . .	2
Scholarship (Puerto Rico) . . . . .	1

Three clinics rendered prophylactic service during the year. A total of 1,283 dental prophylaxes was given, averaging sixty-four cases for each student.

The clinic in the Dental School was supervised by Miss Dorothy Williams, Assistant in Dental Hygiene, assisted by Mrs. Adelyn C. Urtnowski. The clinic was in session for fifty-one half-days from February 2 to May 14.

The Dental Hygiene Clinic, 15 Amsterdam Avenue, was supervised by Miss Mary J. Kellogg and served 482 patients.

The third inspection and dental prophylaxis program was conducted at the Woodycrest Home for Displaced Children from April 6 to April 29. Mrs. Urtnowski supervised the program. Ninety children were inspected and received dental prophylaxis.

On June 5, 1948, a conference of dental hygiene teachers was held in the Dental School. Dr. Leonard J. Goldwater, Professor of Industrial Hygiene, lectured on "Public-Health Departments and their Implications for Dental-Health Education."

Recruitment of students for the curriculum leading to the Bachelor of Science degree, based on a prerequisite of two years of college work, will be launched in the near future. The brochure, *The Dental Hygienist*, was available until April, 1948, and the Bulletin of Information needed to follow-up the brochure was received from the Columbia University Press in May. Preliminary recruitment for the coming year has fallen short of the usual twenty-five candidates. There is an acute need for satisfactory living accommodations for these students.

Through the placement service maintained for dental-hygienist graduates, fourteen candidates were employed. One hundred and twenty-five positions were offered in various parts of the country and in office practice, clinics, industry, schools, and civil service.

## DEPARTMENT OF DERMATOLOGY

Professor A. BENSON CANNON, Executive Officer

During the past academic year the primary function of the Department of Dermatology has continued to be undergraduate instruction. In general, the teaching of the third-year class has continued to stress diagnosis and has been clinical rather than didactic. Fourth-year teaching has undergone no significant departures, with the emphasis also on clinical instruction but including treatment as well as diagnosis.

A number of changes have been initiated in our general organization. A Committee on Administration meets regularly, under the chairmanship of Professor George C. Andrews, to formulate and supervise the teaching and the work of the clinic. Emeritus Professor J. Gardner Hopkins heads a Research Committee whose function it is to review and give advice upon the

research projects, either contemplated or in progress, and to weigh requests from outside sources that we undertake investigative work. Another innovation has been biweekly conferences for the purpose of coordinating the principles of therapy to be followed in the treatment clinic.

A most important affiliation was effected this year between the Department and the United States Marine Hospital on Staten Island. Professor Cannon was appointed Director of Dermatologic Training at that institution, with Professors Beatrice M. Kesten, Paul Gross, and J. Lowry Miller; and Dr. Frank Vero as consultants. Drs. John F. Mahoney, John A. Trautman, Richard C. Arnold, and Robert D. Wright, of the Marine Hospital staff, received appointments as lecturers on the College staff. They will assist in teaching, clinical work, and the experimental program. Dr. Mahoney and his colleagues have given us whole-hearted and most effective cooperation in the drawing up of plans for a research laboratory in serology. They have undertaken to supply us with a full-time research scientist to direct the project.

Graduate instruction in dermatology continues to be in great demand and reflects the added importance this specialty assumed during the recent war. We have twenty-one graduate physicians on our roster, a number of whom were officers in charge of hospitals, treatment centers, and dermatologic services in the Armed Forces. Six more applicants for specialty training have been accepted. (Thirty-seven applications were received during the past year.) Seminars for the graduate students are now being held twice weekly.

Members of our staff were greatly saddened by the death of Dr. Frank Vero after a prolonged illness. During his many years with the Department, Dr. Vero won the affection and respect of all who worked with him, and his death at the prime of his life and work leaves a gap which will be hard to fill.

In October, 1947, Mrs. Myrtle Frankow was engaged as a full-time photographer, filling a long-felt need. Few specialties lend themselves so well to photographic evidence as does dermatology. During the eight months more than four hundred patients have been photographed, mostly in color. A library of colored lantern slides is being built up for lecture and teaching purposes and it is hoped that this will eventually embrace the whole gamut of dermatoses. A major project now under way is the making of colored motion pictures, on the following subjects: skin cancer and precancerous dermatoses, tinea capitis, scabies, pigmented moles, syphilis, and diseases of the finger-nails.

This Department was one of the pioneers in the penicillin treatment of syphilis. Each new penicillin product has been brought to our attention early in its development and has been subjected to carefully outlined clinical test. We are currently studying several compounds of procaine penicillin which apparently are capable of maintaining, for ninety-six hours or longer, blood levels in excess of those considered to be therapeutic.

In conjunction with the Department of Neurology this Department is carrying out a study of the treatment of neurosyphilis on an ambulatory basis. We continue to supervise the treatment of syphilis in pregnant women on the Sloane Service.

Professor E. Gurney Clark of the School of Public Health (aided by a grant from the United States Public Health Service) has been conducting, in the Department of Dermatology, an epidemiologic study of reinfection versus relapse in patients treated for early syphilis with penicillin.

The Department's annual Syphilis Symposium was held on three afternoons in April. All aspects of diagnosis and treatment were covered, with demonstration of patients both from our own and from Professor Cannon's service at City Hospital.

Professor Hopkins has continued to advise and direct the mycology group. Four graduate students and two visiting research workers carried on projects in this Department. Dr. Florante Bocobo, from the Philippines, working under a grant from the Kellogg Foundation, has been studying the pigmentation of the dermatophyte *T. rubrum* and has a paper ready for publication. Dr. Domingos T. Clausell of Brazil, also under a Kellogg grant, carried out a research problem on the value of the skin test with *Paracoccidioides brasiliensis* in experimental animals. Mary Esther Briggs, a graduate student from the Department of Botany, has worked on the problem of hyphal fusions in the dermatophytes. Mr. Milton Huppert continued to carry on the diagnostic work in the clinic, as well as his graduate studies.

Dr. Lucille K. Georg received her Doctor of Philosophy degree in June and has been appointed Assistant in Dermatology. She is continuing her research on the nutritional requirements of the ringworm fungi with relation to the production of spores and structures.

Professor Benham read a paper on cryptococcosis at a symposium on mycology held by the New York Academy of Science. Again, this year, she gave an intensive course in medical mycology at the meeting of the American Academy of Dermatology.

The Department's regular course in medical mycology was given as usual, and attended by twelve graduate physicians from this Department, as well as three graduate students and six doctors and technicians from other institutions.

Professor Gerald F. Machacek has carried on the work of the laboratory of pathology with the assistance of Dr. William M. Huber (recently appointed Assistant Pathologist), and Miss Martha Wright. The postgraduate course in dermatopathology was held again this year and was attended by eleven doctors.

Professor Machacek has continued his investigations into the cutaneous manifestations of general diseased conditions, and reported four cases of nodular panniculitis complicating diabetes mellitus.

The March, 1948, issue of the *Journal of Investigative Dermatology* was published in special honor of Emeritus Professor J. Gardner Hopkins. In addition to a portrait sketch by Perry Barlow and a biographical foreword by Professor Cannon, there were nine articles by members of the Department and contributions by ten other authors from various parts of the country.

Professor Hopkins was elected President of the American Dermatological Association and was re-elected Vice-President of the American Board of Dermatology and Syphilology.

In the belief that research keeps alive a progressive attitude towards medicine and imposes a healthy discipline on habits of scientific thought, every member of the dermatologic staff is engaged in a problem of some type. Among these has been Professor Kesten's study of the use of the new anti-histaminic drugs, both locally and orally, for the relief of allergic dermatitis. A comparative study of five antihistamine preparations, in chronic urticaria, is in progress. Dr. Elias Schneider and Professor Kesten have reported on a psychosomatic and allergic study of patients with polymorphic prurigo. This study indicated that emotional conflicts were of singular importance and that psychotherapy was a major factor in the successful treatment of this disabling dermatitis.

Professor Gross, aided by a grant from the John and Mary R. Markle Foundation, has completed his research on chronic metal poisoning. Professors Kesten and Gross are completing a seven-year investigation into psoriasis as a disturbance of lipid metabolism; and into the relationship of this disease to diabetes mellitus, early coronary atherosclerosis, gall-bladder disease, arthritis, and hypothyroidism. With Dr. Joseph S. Shapiro, Professor Gross has also been studying the Koebner phenomenon in psoriasis.

Drs. Nelson and Harold E. C. Zheutlin have begun an investigation on the possible role of fixed tissue antibodies in hypersensitivity, and Dr. Zheutlin is publishing reports on the sodium and potassium content of human epidermis, the use of diffusion rates in evaluating ointment bases, and "A Scholander Micrometer Buret of Simple Construction."

Professor Cannon and Dr. Marvin E. McRae treated 100 cases of scabies with a new, highly effective agent of low sensitizing potential, a report of which is to be published in the *Journal of the American Medical Association*.

The Department has been host to two visiting scholars: Dr. Chia Chun Yew, Professor of Dermatology at Cheeloo University, Tsinan, Shantung, China; and Dr. Anthony Hargreaves of the London University College Hospital. Dr. Yew has demonstrated ingenious methods of identifying the lepra bacillus, and during his stay here was a delegate to the International Congress of Leprosy in Havana. Dr. Hargreaves has been surveying approximately 250 cases of lupus erythematosus from the clinic and hospital, with a view to correlating results of treatment, pathologic findings, and prognosis.

## DEPARTMENT OF MEDICINE

Professor ROBERT F. LOEB, Executive Officer

On June 30, 1947, Professor Walter W. Palmer retired as Bard Professor of Medicine, as Executive Officer of the Department, and as Director of the Medical Service of the Presbyterian Hospital. At that time Professor Palmer became Professor Emeritus and also assumed the position of Director of the New York City Public Health Research Institute, Inc. Under the leadership of Professor Palmer the Department has in the past twenty-six years come to assume a place of first importance in American medicine. Professor Palmer, with rare wisdom and judgment, gradually gathered about him a group of men whose contributions to the science and teaching of medicine have received wide recognition.

During the past year Professor David Seegal resigned to become the Medical Director of Maimonides Hospital in Brooklyn. Professor Seegal had served as the first Director of the Columbia Research Division of the Goldwater Memorial Hospital, and under his direction established a teaching and research service of high distinction. Professor Alexander B. Gutman, on November 1, succeeded Professor Seegal and has been promoted to Associate Professor. Professor David E. Green has resigned to become Professor of Enzymology at the University of Wisconsin. Drs. Charles A. Ragan and Richard L. Riley have been promoted to Assistant Professors, and Professor Ralph H. Botts, to Associate Clinical Professor. Drs. Howard G. Bruenn and Charles A. Flood became Assistant Clinical Professors. Professors Armistead C. Crump and Maxwell Schulman retired, and Dr. Joseph Jailer has resigned to become a member of the staff of the Mount Sinai Hospital. Dr. W. Eugene Knox resigned to become Assistant Professor at Northwestern University.

Teaching activities of the Department have been extended in the past year. Biweekly seminars have been held and have included discussions of work in progress in the Columbia Divisions of Bellevue and Goldwater Memorial Hospitals, as well as at the Medical School. Participation of senior members of the staff in conferences at Bellevue and Goldwater Memorial Hospitals has proved very successful in furthering the unity of the Department. Integration of the teaching of medicine and the basic sciences has been furthered by the correlation clinics in the first year, as well as joint exercises between the Department of Medicine and the Departments of Pathology and Pharmacology. The fourth-year clerkship, conducted under the direction of Professors J. Burns Amberson and Dickinson W. Richards at Bellevue Hospital, continues to be a most important addition to the teaching of the Department.

Working at the graduate level in the Department this year were: Dr. C. R. Bickerton Blackburn, Rockefeller Foundation Fellow from Sydney, Australia;

Dr. Pierre Alphonse, Fellow of the Foundation Suisse; Dr. John V. Taggart, Welch Fellow; and Fellows supported by the Life Insurance Medical Research Fund and the United States Public Health Service. Opportunity has been provided for members of the resident staffs of the Bellevue, Goldwater Memorial, and Presbyterian Hospitals to participate actively in research. In an attempt to integrate teaching activities of the Department with outlying communities, more opportunities have been provided for a select number of physicians, engaged in group practice in New York, Connecticut, and New Jersey, to participate in the teaching activities of Vanderbilt Clinic.

A high level of productivity in research has continued during the past year. Professor Randolph West has established the anti-anemic activity of the recently discovered vitamin B<sub>12</sub> in pernicious anemia, when administered in "trace" amounts. Professor West, in conjunction with Dr. Irving M. London, and with Professors David Rittenberg and David Shemin of the Department of Biochemistry, has continued studies of the intermediary metabolism of blood with N<sup>15</sup> glycine.

Professor David E. Green, in collaboration with Drs. John V. Taggart, Richard Cross, W. Eugene Knox, William A. Atchley, and Jack L. Still of the University of Sydney, Australia, continued observations on the properties of the cyclophorase enzyme system of animal tissues. Studies with radio-phosphorus suggest that various co-enzymes participate as intermediates in the phosphorus transformation.

Professor Michael Heidelberger, with his collaborators Dr. Robert Krueger, Mr. Abraham G. Osler, Mr. Harold Markowitz, Mr. Paul Maurer, Mrs. Marie de Lapi, Dr. Robert Muller, and Dr. Daniel Larson, has continued his fundamental studies in quantitative immunochemistry. These investigations have included studies of quantitative behavior of antibodies in different fractions of horse serum. Studies have also included the nature of the unstable nitrogen-containing component of the specific polysaccharide of Type I pneumococcus and the antibody response of leukemia patients to pneumococcal polysaccharides and diphtheria toxoid. New light has also been thrown on the problem of complement in spinal fluid.

Professor Stanley E. Bradley, together with Drs. Eleanor deF. Baldwin, Gilbert H. Mudge, William D. Blake, Geraldine P. Bradley, Theodore Groff, and Cornelius J. Tyson, continued studies on the physiology of the kidney and liver. They have demonstrated an augmentation of reabsorption of water and salt by the kidney with increasing venous pressure, particularly in the presence of diminished cardiac reserve. They have observed a reduction in hepatic blood flow in various types of cirrhosis of the liver and have acquired evidence indicating that hepatic oxygen consumption is independent of hepatic blood flow. Dr. Baldwin, together with Drs. David G. Greene and Charles E. Roh, continued studies in cardio-respiratory physiology in a variety of disease



states. This group, in conjunction with Drs. Marcel Goldenberg and Kermit L. Pines, has also studied the hemodynamic responses, in man, to noradrenaline, adrenaline, and a group of bronchodilator drugs. Dr. Baldwin, together with Professors Dickinson W. Richards and Andre Cournand at Bellevue Hospital, completed the study of 133 cases of pulmonary emphysema, and thirty-three cases of pulmonary fibrosis. These investigators have prepared a monograph on pulmonary physiology.

At Bellevue Hospital, in coöperation with the Chest Service and the First Medical Division, Professors Richards, Cournand, and Richard L. Riley, and Drs. Ireneé Ferrer and Réjane Harvey have extended their studies concerning the physiology of the pulmonary circulation in man. This same group has also made studies on the early effects of digitalis and quinidine upon cardiac output and the circulation. They have also defined the most effective form of positive pressure breathing in relation to cardiac output. Dr. Richard T. Cathcart has initiated a comparison of cardiac output as measured by the ballistocardiograph and by cardiac catheterization. Professor Riley has developed important simplifications in techniques essential for the definitive measurement of gas diffusion in the lungs in health and disease. Professor Edgar G. Medlar has completed a valuable study on the pathogenesis of early minimal tuberculosis. Together with Dr. David M. Spain, he has made a study of pathogenesis of genitourinary tuberculosis. Professor J. Burns Amberson and Dr. William H. Stearns are carrying on observations on the therapeutic effects of streptomycin in tuberculosis. Drs. Harold H. Coppersmith, James Leland, Woodbury Perkins, and K. Jefferson Thomson have studied the treatment of pneumonia with penicillin, administered twice daily.

Professor George A. Perera and Dr. Kermit L. Pines have continued their studies on the relation of the adrenal cortex to hypertensive vascular disease. Preliminary studies indicate that cortical extract may have the capacity to lower blood pressure. Studies on the effect of salt restriction on glomerular filtration and renal plasma flow have been carried on in conjunction with Professors Stanley E. Bradley and Robert W. Berliner. Drs. Abbie I. Knowlton and Emily N. Loeb, with Professor Beatrice C. Seegal of the Department of Bacteriology, extended their observations relating to the effect of desoxycorticosterone to hypertension and the course of anti-kidney serum nephritis. Drs. Knowlton, Jailer, and Gilbert H. Mudge have also made a study of the hormonal changes, occurring during pregnancy, in four patients with Addison's disease. Drs. Mudge and Pines have carried out balance studies and muscle-electrolyte analyses in patients with acidosis and alkalosis, finding replacement of potassium by sodium in both states, probably as a result of potassium deficiency.

Professors A. Raymond Dochez and Yale Kneeland, with Miss Katherine Mills, continued attempts to adapt the virus of the common cold to small ani-

mals and to develop an *in vitro* test for the virus. Miss Mills has found it possible to induce a transmissible type of pneumonitis, in mice, with pleuropneumonia-like organisms with intranasal inoculation. She has also found that all types of pneumococci so far studied are capable of elaborating receptor-destroying enzyme.

Professor Ragan, in conjunction with Professor Karl Meyer, has continued studies on the rheumatic state. They have shown that gentesic acid, a degradation product of salicylate, has striking anti-rheumatic effects. Professors Ragan and Harry M. Rose have developed a new and useful diagnostic test for rheumatoid arthritis, based upon the agglutination of sensitized sheep cells by the serum of patients. Dr. Edward E. Fischel and Professor Elvin A. Kabat, of the Department of Bacteriology, have studied the quantitative relations of antigen and antibody essential for the production of the Arthus phenomenon. With Dr. Marjorie J. Le May of the Department of Radiology, they have found that the sharp fall of lymphocytes, following administration of adrenocorticotrophic hormone or x-ray exposure, is not associated with a rise in antibody titer in immunized animals. Dr. Fischel has shown a marked rise in serum complement in most patients with rheumatic fever and has also reviewed the natural history of 316 rheumatic patients followed for a minimum of six years. Professor Rose and Dr. Count D. Gibson, Jr., have made a study of the comparative effectiveness of penicillin, given twice daily and more frequently in streptococcal infection, in mice. They have also reported a local outbreak of virus meningitis. Professor Rose has carried on clinical studies of rickettsialpox as well as studies on the characteristics of the virus.

Professor Joseph C. Turner has carried on further studies on the inhibition of growth of mouse sarcoma by vaccinia virus. He has also found that the respiration of chicken erythrocytes is stimulated by the introduction of influenza A virus.

Professor Robert L. Levy with Dr. James A. L. Mathers has studied the relation between the level of arterial oxygen saturation and electrocardiographic changes appearing in the course of diagnostic anoxemia tests. They have also continued to study the effects of nicotine on heart rate and blood pressure. Drs. David R. Blood and Richard T. Cathcart made definitive observations on the effects of digitalis and aminophylline on the blood clotting mechanism. Dr. Rene Wegria, in collaboration with Dr. Richard P. Keating, carried on studies, in the dog, in which quantitative decreases in coronary blood flow were correlated with changes in the electrocardiogram. They also studied the effect of various forms of tachycardia upon coronary blood flow. Together with Drs. Keating and William D. Blake, Dr. Wegria has shown that, in dogs, elevation of the venous pressure is associated with an increase in reabsorption of salt and water by the kidney.

Dr. Stuart W. Cosgriff has completed the study of four hundred patients with thrombo-embolic disease treated with anti-coagulants, and has demonstrated the effectiveness of lyophilized plasma in the management of hypprothrombinemia. He has also studied the pathological physiology of blood clotting in a variety of disease states.

Professor Alvan L. Barach and Dr. Chesmore Eastlake, Jr., have extended their studies on the treatment of advanced tuberculosis with the immobilizing lung chamber with encouraging results, and have studied the effect of para-aminosalicylic acid in tuberculosis. Professor Barach, with Drs. Bettina Garthwaite and Eduardo Pons, and Dr. Hylan Bickerman at Goldwater Memorial Hospital, has continued his observations on the treatment of chronic sinusitis and bronchiectasis with aerosols containing various antibiotic agents.

Professor Robert C. Darling studied changes in the composition of human sweat with environmental change utilizing patients undergoing physical hyperthermia. Professor Darling and Dr. Edward E. Gordon studied the effect of physical hyperthermia upon oxygen and carbon dioxide equilibria in the blood.

Dr. Sidney C. Werner has made, in conjunction with Professor Edith H. Quimby of the Department of Radiology, extensive observations on the use of radioactive iodine in the diagnosis and treatment of thyroid disease and has established an endocrine clinic in which various clinical departments co-operate. Dr. Joseph W. Jailer developed a fluorimetric method for the determination of estrogens and has applied it to study possible differences in estrogen tolerance in normal women and women with carcinoma. He, together with Mr. Paul A. Marks and Mrs. Dorothy T. Marks, made studies on the effect of glucose, administered orally, upon the circulating lymphocytes in patients with diabetes mellitus and other disorders.

Professor George E. Daniels and various members of his staff have embarked upon studies of the psychodynamic factors involved in hypertension, making studies of cardiac and peripheral resistance and continuous blood pressure recordings in hypertensives, in response to psychological factors. This work is being carried on in collaboration with Professor John L. Nickerson of the Department of Physiology. Studies on the psychological factors in functional amenorrhoea and ulcerative colitis are also in progress.

Drs. William H. Sheldon and Wesley C. Dupertuis have continued to collect data on the physical constitution and various mental and somatic disorders. They have also studied the correlation of the different somatotypes with blood volume and cardiac output.

A close association between the Columbia University Research Division of the Goldwater Memorial Hospital and the Public Health Research Institute of the City of New York, established this year, will result in an increase in the

bed capacity of the Columbia Research Division from fifty to one hundred beds, and will increase the opportunities for research of a broad nature for both participating groups.

During the past year Professor Forrest E. Kendall, Dr. Alfred Steiner, and Professor Margaret Bevans have extended their studies on experimental arteriosclerosis in dogs and rabbits. They have extended their studies on the development of arteriosclerosis in dogs rendered hypothyroid with thiouracil. Professor Arthur J. Patek summarized his ten-year study on the dietary treatment of cirrhosis in about 350 patients and found a 30 percent survival, after five years, in patients following the diet initiated by him in contrast to survival of only 7 percent in the control series. Professor Patek further investigated the effect of cirrhosis on urobilign excretion. Professor Robert W. Berliner and Dr. Thomas J. Kennedy have studied electrolyte excretion by the kidney and the effects of mercurial diuretics. They, and Dr. Gilbert H. Mudge, demonstrated the active secretion of the potassium ion by renal tubules. Dr. Hylan Bickerman together with Professor Alvan L. Barach has devised a new apparatus for positive pressure breathing in pulmonary edema. Professor Alexander B. Gutman and Dr. Yu Tsai-Fan have completed studies on the role of glycogenolysis in the calcification of cartilage using various enzyme inhibitors to ascertain their effect on calcification with inorganic phosphate and suitable phosphoric esters. Professor Gutman has prepared uric acid and glycine containing  $N^{15}$  for the study of gout, and has continued observations on the effectiveness of low-protein diets in the treatment of gout.

Dr. Mohamed Hafeez, a visiting student sent by Mysore Medical Service, India, is spending one year in the Department in order to acquaint himself with the field of physical medicine. On his return to India he will assume the responsibilities for administering physical medicine at Mysore.

#### OCCUPATIONAL THERAPY

During the Spring of 1948 twenty-seven students graduated from the occupational therapy course, ten having completed the requirements of the Faculty of Medicine for the Bachelor of Science degree, and seventeen for the Certificate in Occupational Therapy. All of the graduates took and passed the Registration Examination of the American Occupational Therapy Association.

The student enrollment for the academic year totaled eighty, of which thirty-nine were new students drawn from 112 applicants. These students came from twenty-one states and Puerto Rico, and received college preparation in sixty-two colleges and universities. Eight students withdrew during the year because of illness, academic failure, or marriage.

The need for scholarship aid is becoming more apparent as the number of veterans decrease and expenses increase. Of the total enrollment nine were

veterans and eleven received scholarship aid from the University Fund or from Bureaus of Vocational Rehabilitation. There were many additional requests for help that could not be met.

There were no major course changes during the year although a few are anticipated for next year. Thirty-four hospitals and agencies offered their facilities to our students for clinical affiliation.

In the fall, Miss Marguerite Abbott and Miss Marie Louise Franciscus joined the staff as Associate Directors of Training Courses for Occupational Therapists. Miss Marjorie Fish, Director of Training Courses for Occupational Therapists, was granted a leave of absence in December, 1947, for a six-month period, for the purpose of going to Sydney, Australia, to aid in the organization of a training center there. During the absence of Miss Fish, Miss Franciscus is serving as Acting Director.

The staff members have participated in professional organizations and on many committees and have lectured to lay and professional groups both within the University and outside.

The demand for qualified therapists appears to be increasing and we are unable to meet the need with our small number of graduates. Positions are available in all types of hospitals and agencies. We have increased the efficiency of our placement service by improved systems of filing and follow-up of available positions and hope in the near future to work out uniform recommendation records for the graduates. Graduates of this School are now working in twenty-six states.

#### PHYSICAL THERAPY

This year marks the sixth graduation since our program began in 1943. In August, 1948, we anticipate that thirty-six students will have satisfactorily completed this course of training. Nine of these are our first graduates of the new two-year program which was adopted in September, 1947.

Geographic distribution in placement at this time reaches twenty states within the continental United States, Puerto Rico, and Hawaii. In their work our graduates are filling responsible positions in the Veterans Administration, state and county public-health programs, civilian hospitals, rehabilitation centers, and doctors' offices.

Despite the fact that physical therapy has been predominantly a woman's field, we have a total of eight men in the present class and we have accepted nine men for the 1948 class.

Fourteen students attending the course this year hold scholarships from the National Foundation for Infantile Paralysis. The need for scholarship aid is becoming increasingly apparent with the decline of veteran applications and the increased instructional costs.

There were no major changes made in the curriculum of didactic instruc-

tion offered during this academic year. We have been able to enrich our field of clinical experience for students by including Bergen Pines Hospital, Ridgewood, New Jersey, and the Newington Home and Hospital for Crippled Children, Newington, Connecticut. At these two places, and the New York State Rehabilitation Hospital, the students receive special training in muscle re-education, muscle testing, underwater exercise, and general rehabilitation. The majority of cases treated at these centers are poliomyelitis patients. For the over-all general practice of all physical therapy modalities, each student spends some time at two of the following: Vanderbilt Clinic; Neurological Institute; Motor Disabilities Clinic, Neurological Institute; Posture Clinic, Vanderbilt Clinic; New York Orthopaedic Dispensary and Hospital; Ray Clinic, Veterans Administration; Bronx Veterans Hospital; and Marine Hospital, United States Public Health Service. Students in public health nursing receive a period of training with the Association for the Aid of Crippled Children.

## DEPARTMENT OF NEUROLOGY

Professor EDWIN G. ZABRISKIE, Acting Executive Officer

During the past year the separation of neurological surgery from neurological medicine has been accomplished with ease and lack of confusion, and the two departments are now functioning independently. A new Executive Officer of the Department of Neurology, Professor H. Houston Merritt, has been appointed, effective July 1, 1948, after the most searching consideration.

Undergraduate teaching has proceeded without any significant changes with the exception of establishing two-man teams for the intensive teaching of neurology to third-year students. The course in electives has been very satisfactory under the guidance of Dr. Carmine T. Vicale.

The Department has continued to coöperate with the Department of Psychiatry in giving courses to residents in state hospitals; one of these is a special course for veterans, and the other a regular postgraduate course for residents of state hospitals and other physicians who may wish to participate. The informal training in clinical neurology has continued to be one of the most successful features of postgraduate teaching of the Department under the able direction of Professor Hans Hoff.

Under the leadership of Professor Harry Grundfest progress is being made in the Department's participation in the follow-up study of peripheral nerve repair which the Veterans Administration is making throughout the country. Dr. Joseph Moldaver and Dr. Ernst Herz are still working with Professor Grundfest on this project. Professor Grundfest and workers, with the co-

operation of Professor David Nachmansohn and Dr. Mortimer Rothenberg, continue to study the part played by acetylcholine-cholinesterase in inhibiting electrical activity. Dr. Domingo Ampil has completed his studies on the electrical properties of the autonomic ganglia.

The curare research, under Dr. Edward B. Schlesinger, has proven to be of extraordinary usefulness in the treatment of muscle spasm and spasticity. He has added to his pharmacological agents the drug, myanesin, as well as several other drugs.

Professor Elvin A. Kabat has been carrying out studies, under a United States Public Health Service grant, on the characterization of the blood groups A and B substances from hog and human sources, in collaboration with Dr. Harold Baer, Miss Ada E. Bezer, and Mrs. Vesta Knaub. In connection with the project of the National Multiple Sclerosis Society, Professor Kabat published an immunochemical method for the quantitative determination of albumin and gamma globulin, together with Dr. Murray Glusman and Mrs. Vesta Knaub. Increases in gamma globulin in the spinal fluid of patients with neurosyphilis, and of a large proportion of patients with multiple sclerosis, were found. Studies are continuing with Drs. David Freedman, Hyman G. Weitzen, and Miss Jean Murray to establish whether changes in the cerebrospinal fluid gamma globulin can be correlated with the course of the disease. Work is also continuing, in collaboration with Dr. Abner Wolf and Miss Ada E. Bezer, on acute disseminated encephalitis, produced experimentally in the Rhesus monkey, and its relation to human demyelinating disease. Dr. Baruj Benacerraf is visiting the laboratory and is continuing studies on the quantitative immunochemical aspects of allergic reactions.

Professor Henry A. Riley continues his work on the cytologic atlas of the neuraxis. Dr. Frederic T. Zimmerman is pursuing his studies on the effect of glutamic acid on the intelligence of children. Drs. Zimmerman and Jerry C. Price are observing the effects of a coenzyme on petit mal and psychomotor equivalents, under a grant from Parke, Davis, and Company. Dr. Albert Rosner is still working on the treatment of parkinsonism by psychiatric voice recording and the use of electric shock. A research project for the treatment of acute cases of poliomyelitis has been started by Drs. Sander and Saul Korey. This will be under the direction of Professor Merritt.

The Greystone project, conceived and directed by Professor Frederick A. Mettler, has proven of outstanding interest throughout the country. The preliminary report was presented for two days at the New York Academy of Medicine this spring and aroused wide interest. So much so that a similar project is now under way in New York State. This has come about through the coöperation of the Department of Mental Hygiene of New York State and the Departments of Psychiatry, Neurology, and Neurological Surgery at

the Columbia-Presbyterian Medical Center. This project is of such importance that Professor Mettler is taking a sabbatical year, as of July 1, 1948, in order to devote full time to it. In the meantime, the Greystone project is being carried on.

Professor Paul F. A. Hoefer is pursuing his researches in coöperation with the Department of Neurological Surgery. They are recording action potentials from the brain surface, and a new type of electrical cautery has been developed and is in use. Dr. Ernst Herz is continuing his follow-up studies of the surgical treatment of Parkinson's disease, and in the analysis of various forms of tremor and disorders of coördination.

This Department regrets to announce the loss, through death, of one of its most distinguished members, Professor Otto Marburg, on June 14, 1948.

## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

The list of our visitors from foreign countries, and from other institutions in the United States, increases annually. These contacts have been most interesting and stimulating to us as well as to our visitors. We have thus become acquainted with nurses from England, France, Czechoslovakia, Norway, Denmark, Sweden, Turkey, Palestine, Egypt, and the Philippines.

Through various committee activities, carried on jointly by the classroom and clinical teaching groups in nursing, a thorough review of the clinical nursing curriculum has been conducted and a number of recommendations made, which are being successfully carried out. The introduction of a diagnostic order sheet and the assignment of certain types of activities directly to interns or medical students has released both time and energy for specific nursing care and teaching.

The special committee appointed by the Medical Board of the Hospital in May, 1947, to study nursing problems, has met throughout the year. Its report has just been submitted with thirty-five recommendations, many of which deal with matters of mutual concern to the University. The time and thought which has been spent on this effort is gratefully acknowledged.

The class of 1948 numbered ninety-seven students, including sixty-one degree candidates of whom two received their diplomas earlier in the year. At the Commencement Exercises of Columbia University on June 1, fifty-nine students received the Bachelor of Science degree in the nursing course and one graduate received the Master of Science degree.

Our first candidate for the Master of Science degree with pediatrics as her field of specialization completed her course in September, 1947. She was Miss



Elizabeth O'Connell, a graduate of Washington University in St. Louis, Missouri. Miss O'Connell returned to the School of Nursing there and on January 1, 1948, became Director of Nursing at the St. Louis Children's Hospital.

At the graduation exercises in the Hospital Garden on June 3, we were especially happy to have as the speaker of the day, Dr. Frank D. Fackenthal, Acting President of Columbia University. The class of 1948 is the last one to include either students from the Bryn Mawr College Summer School of Nursing or members of the United States Cadet Nurses Corps.

During the past twelve months eighty-seven graduates of the School took the State examinations for licensure to practice nursing in New York State. Only one failure has been reported up to this time.

The Dean Sage Scholarship was awarded to Miss Elaine F. Manville. This is the second award of this scholarship which provides all tuition and University fees for a degree candidate.

A special scholarship has been donated for award to a member of the class of 1951 by the husband and parents of Mrs. Frederick Redpath whose sudden death on December 26, 1947, was a shock to all who knew her.

On October 1, a forty-four hour week was inaugurated for student nurses. Flexibility of hours has been maintained successfully to provide for a wider range of activities and fewer absent days to be made up at the end of the course. By January 1, 1948, all professional nurses were on similar schedules.

The completion of the Edward S. Harkness Memorial Hall marks a milestone in the development of institutional housing. Attractive housekeeping apartments of one, two, or three rooms are thus provided for 200 members of the full-time staff, the majority of whom are nurses.

Professor Helen Goodale was granted a leave of absence for the 1947 Summer Session to conduct a course and workshop in the administration of a nursing service at the University of Minnesota. She and Miss Elizabeth Wilcox gave an excellent series of classes to forty of our own head nurses during the Spring Term. Miss Goodale also presented a course in nursing service problems to students in hospital administration at the School of Public Health.

Professor Mary E. Allanach was on leave of absence for the Winter Term, making a study of advanced clinical programs in obstetrical nursing in hospitals and universities in New York, Detroit, Cleveland, Chicago, Baltimore, Philadelphia, and New Haven. She has presented an interesting report with many significant suggestions.

Miss Marion Cleveland, Instructor in Nursing, was granted a leave of absence for the year to take charge of the advanced course in medical and surgical nursing in the Division of Nursing Education at Teachers College. Miss H. Virginia Bunn replaced her on the Women's Medical Service.

Miss Jessie M. A. Mutch, Instructor in Nursing, was granted a leave of absence for the Spring Term to complete the requirements for her Master of Arts degree in the Division of Nursing Education at Teachers College. The degree was conferred in June.

Miss Harriet Mantel, Instructor in Nursing, is directing a joint committee of our own students and faculty in developing sound methods of interesting the right type of young woman in a professional nursing career.

The publication of the second edition of *Essentials of Nursing*, by G. P. Putnam's Sons with Miss Elizabeth Wilcox as editor, has been received very favorably. This is also true of the *Laboratory Manual of Microbiology for Nurses*, by Miss Elizabeth S. Gill and Dr. James T. Culbertson, published in September, 1947, by G. P. Putnam's Sons.

The Outpatient Nursing Service is continuing with great success. Between July 1, 1947, and June 30, 1948, ninety students made 2,551 visits to 325 patients. While instituted primarily as an educational project, it has become equally important in contributing to the continuity of our patients' care.

We have lost, by death, four loyal friends of nursing during the year: Dr. Clay Ray Murray, whose keen understanding embraced both the education of nurses and their vital contribution to expert care of patients; Dr. Hugh Auchincloss, to whom we are indebted for our priceless collection of Florence Nightingale memorabilia as well as for his fine ideals and his generous professional care; Dr. J. Bentley Squier, who always regarded nurses as an important factor in his professional team; and Dr. William Darrach, who commanded the affectionate admiration of all who worked with him when he was Dean of the Faculty of Medicine.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor HOWARD C. TAYLOR, JR., Executive Officer

Important changes in the personnel of the Department have taken place during the last year. Dr. D. Anthony D'Esopo, who first came to the Sloane Hospital in 1925, has been made Professor of Clinical Obstetrics and Gynecology. Dr. Charles Lee Buxton, who graduated as a resident from the Sloane Hospital in 1938, has been appointed Associate Professor of Clinical Obstetrics and Gynecology. These two men are filling important roles in the activities of the Department. Professor D'Esopo has been principally concerned with supervision of clinical care and with student instruction. Professor Buxton has been made Chief of Clinic for Obstetrics and Gynecology in the Vanderbilt Clinic and is also concerned with the correlation of research activities.

At the end of this year Professor James A. Corscaden will retire as an active member of the Department. His contributions to the clinical knowledge of

gynecologic tumors has been widely recognized and the loss of his active participation in departmental work will be keenly felt.

There have been two resignations during the year: that of Professor John H. Boyd, who left the Department in order to take a post in another institution; and Professor William M. Findley, who resigned because of illness.

Changes in the teaching program during the last twelve months have largely affected the third year. The presentation of this course has been rearranged so as to place the medical aspects of the reproductive life of women in a more logical sequence, and to merge the concepts of obstetrics and gynecology. These lectures fall logically into four groups: the physiology of the ovarian cycle and its disorders; pregnancy; labor, and parturition; and organic gynecology.

The research program of the Department has expanded rapidly during the last year with the aid of grants from the American Cancer Society, the John and Mary R. Markle Foundation, the Jane Coffin Childs Memorial Fund, as well as from a number of personal donations. The work has continued to be directed towards problems of fertility, cancer, the toxemias of pregnancy, and the physiology and mechanics of labor.

The work on the electro-physiology of labor has been carried forward by Dr. Charles M. Steer and Mr. George J. Hertsch. They have completed an apparatus which is capable of detecting minute alternating currents set up by the contracting uterine muscle.

The relation of pelvic architecture to the outcome of labor has continued to be an object of study by Professor D'Esopo and Drs. Moloy and Steer. A large program has been outlined, and support is being sought for an investigation which will combine data obtained from the x-ray measurements of pelvic size with those from the study of the electro-physiology of the uterus, in order to develop a dependable and more or less exact method of predicting and guiding the course of labor in any given case.

A clinical study of the relation of heart disease to pregnancy has been completed by Professor Alvin J. B. Tillman indicating the extreme importance of this complication among the risks taken by the pregnant woman.

The various problems of fertility have been under investigation by Professor Buxton, working in collaboration with Professor Earl T. Engle of the Department of Anatomy. The work of this year has been directed particularly toward the development of surgical procedures for the correction of obstructions of the fallopian tube.

Research on the causes and the abnormal physiology of the toxemias of pregnancy has been continued. This work was conducted through the clinical efforts of Dr. Byron Butler and the laboratory techniques of Professor Graff. Investigation has been concerned particularly with the possibilities of an abnormality of the blood-clotting mechanism as a cause of toxemia of pregnancy,

and with the renal function in toxemic patients with particular reference to the renal clearance of sodium and other electrolytes.

Collaborative work with the Department of Pediatrics has been continued upon the incidence and causes of congenital anomalies in the newborn, and upon the effect of Rh incompatibility on surviving infants with erythroblastosis.

Studies on the physiology of the ovary are in progress by several members of the Department, working for the most part in collaboration with Professor Engle and his associates in the Department of Anatomy. Dr. Joseph W. Jailer has published several studies on 17-ketosteroid excretion, the value of ovarian hyperemia as a method for determining ovulation time in women and on urinary estrogenic substances, respectively. Work is under way toward the development of a quantitative anatomical method of evaluating the potential ovarian activity of the human ovary.

Dr. Saul B. Gusberg, under a grant from the New York Cancer Committee, has developed a teaching and research clinic for the early detection of uterine cancer using the Papanicolaou vaginal smear technique. With Professor William B. Atkinson of the Department of Anatomy, he is working on new staining methods for the more effective detection of the cancer cell in these preparations. These workers have also published a report on the presence of phosphatases in normal, hyperplastic, and cancerous endometrial glands. Dr. Jailer, employing improved techniques for the detection of estrogens, has been studying the relative rates of excretion of injected estrogens in normal women and those afflicted with cancer.

Professor Graff has expanded his work, in collaboration with Professor Cushman D. Haagensen of the Department of Surgery, on the isolation and characterization of the virus which is evidently the milk factor in hereditary mouse mammary carcinoma. Professor Graff's laboratory is also engaged in fundamental studies on the nucleic acids which are so intimately concerned with the multiplication of cells of both a normal and abnormal character.

Professor Taylor has completed a rather extensive clinical study on the effects of vascular disorder on the female reproductive organs. During the past year he has served as Chairman of the newly formed Committee on Human Reproduction of the National Research Council. Professors Taylor and Buxton are Chairman and Secretary, respectively, of the General Program Committee of the International Congress of Obstetrics and Gynecology, to be held in New York City in May, 1950.

The groundwork, both in regard to personnel and ideas, appears to have been laid for a progressive and active research and teaching program. Further consideration of the curriculum of the Department, and expanded facilities for research, appears to be a most essential step for further progress.

## DEPARTMENT OF OPHTHALMOLOGY

Professor JOHN H. DUNNINGTON, Executive Officer

Within the past year a great deal of thought and energy was expended in attempting to systematize the undergraduate teaching program. The two-week period of instruction each student receives is inadequate but, largely through the organizing zeal of Professor Maynard C. Wheeler, all phases of ophthalmology are presented to the student. It is to be hoped that in the near future additional time can be allotted for a more detailed consideration of medical ophthalmology. With the retirement of Professor Thomas H. Johnson on July 1, 1947, the Department lost one of its best teachers whose kind and practical counsel is sorely missed. The resident training program has included the usual intensive four-month course in the basic sciences, as well as many didactic lectures and demonstration periods.

Seminars, which were so ably arranged by Professor LeGrand H. Hardy, were held on alternate Friday afternoons. These presentations were of such high quality that they have proved to be of great instructional value to the entire staff.

The research activities have been numerous although the scope has been limited through insufficient space. Professor Ludwig von Sallmann has reported on autoradiography of the eye. He has shown that radioactive sodium penetrated into the eye fluids from the blood, chiefly in the region of the ciliary body and optic nerve, by diffusion through the capillary walls. He has also under investigation the permeability of the hyaloid membrane, the effect of hyaluronidase on the absorption of the red blood cells from the vitreous, and the influence of Roentgen-irradiation on the permeation of fluorescein from blood into the aqueous.

Professor George K. Smelser has resumed his studies on experimental exophthalmos and has demonstrated the unusual deposition of fat in various parts of the body that occurs in hypo- and hyperthyroid states. Further studies on this important finding may provide a clue for the causation of exophthalmos in thyrotoxicosis. He also assisted Professor von Sallmann in the histological study of the development of cataract and the electrophoretic analysis of the lens proteins in cataracts.

Professor Karl Meyer has continued his studies on lysozyme, hyaluronic acid, and chondroitin sulfates. He has shown that hyaluronidase is a constant component of the aqueous humor and the spinal fluid. In collaboration with Dr. Charles A. Ragan, Jr., of the Department of Medicine, he has also reported on the antirheumatic activity of gentisic acid—a substance which because of its low toxicity promises to be a valuable therapeutic agent in rheumatic fever.

Professor Murray Sanders has studied the action of various drugs on virus infections of the eye. In collaboration with Professor Alson E. Braley, he is reporting his encouraging results, following the use of Aureomycin in herpes and other virus diseases, before the Association for Research in Ophthalmology in Chicago on June 22.

The clinical investigations on retinoblastoma have been continued under the direction of Professor Algernon B. Reese. Grateful acknowledgement is made of the generous contribution by Mr. George B. Wrightsman for the furtherance of this work which will include studies on congenital anomalies. This project will be carried out in conjunction with the Departments of Pediatrics and Obstetrics and Gynecology. Dr. Frederick Blodi is devoting his entire efforts to this investigation. Dr. Arnold Forrest, working under the auspices of the Retinoblastoma Fund, is studying pseudotumors of the orbit.

In the Knapp Memorial Laboratory, Professor Hardy, Dr. Gertrude Rand, and Miss Catherine Rittler have continued their studies on defective color vision and light adaptation. Among the new projects under investigation are Luneburg's K. factor in spatial orientation, Hardy-Rand-Rittler polychromatic plates and the Navy Color Lantern, as well as the Threshold color tester of the School of Aviation Medicine.

Working under a grant from the Harriman Fund, Dr. Otto Lowenstein has organized his studies on pupillary reactions in many ophthalmic and neurologic conditions. Dr. Robert R. Chace, in collaboration with Dr. Katherine K. Merritt of the Department of Pediatrics, has carried on extensive investigations on ocular changes in the newborn.

At the Havana meeting of the Pan American Congress of Ophthalmology, which was well attended by members of the staff, Professor M. Uribe Troncoso was awarded a Medal of Honor for his numerous contributions to ophthalmology.

Professors Dunnington and Reese have continued to serve as members of the American Board of Ophthalmology. Professor Reese is also Secretary of Ophthalmology for the American Academy of Ophthalmology and Otolaryngology; as well as a member of the Committee on Ophthalmology, Division of Medical Science, National Research Council. Various members of the Department have participated in the programs of the national societies and taken an active part in the instructional courses as given by the American Academy of Ophthalmology and Otolaryngology.

## DEPARTMENT OF ORTHOPEDIC SURGERY

Professor ALAN DeFOREST SMITH, Executive Officer

The death of Dr. William Darrach, Dean Emeritus and former Professor of Clinical Surgery, was keenly felt by all members of the Department. Although Dr. Darrach had retired, he had continued to take an active interest in the Fracture Service up to the time of his death, regularly attending all of the weekly conferences and contributing a great deal of his sage counsel. Dr. Darrach founded the Fracture Service in 1926 and was one of the pioneers in establishing a special department for traumatic surgery.

Dr. Walter A. L. Thompson has been reappointed Associate in Orthopedic Surgery and Associate Attending Orthopaedic Surgeon at the New York Orthopaedic Dispensary and Hospital. Drs. Frederick S. Craig and James P. Miller, at the completion of their Annie C. Kane Fellowships, were made Instructors in Orthopaedic Surgery and Assistants Attending Orthopaedic Surgeons at the New York Orthopaedic Hospital. Drs. Sawnie R. Gaston and Charles S. Neer joined the Department as Instructors in Orthopaedic Surgery and Assistants Attending Orthopaedic Surgeons serving on the Fracture Service.

The instruction of undergraduates has been continued, with some curtailment of time, at the New York Orthopaedic Hospital and on the Fracture Service at the Presbyterian Hospital. The demand for graduate instruction in this Department has been unusually great and during the year sixteen Fellows, upon completion of their residencies, have stayed on. In addition there have been numerous visitors from all parts of the world who have been eager to learn new methods and techniques developed in this country.

At the New York Orthopaedic Hospital a research project is being carried out, with assistance from Merck and Company, on the treatment of bone and joint tuberculosis by the combined use of streptomycin and surgery. A clinical survey of the results of operation for herniated nucleus pulposus, both with and without spine fusion, is being made in conjunction with the Department of Neurological Surgery. Other clinical investigations are being made in arthroplasties of the hip, congenital dislocation of the hip, tuberculosis of the spine, scoliosis, and dorsal round back.

Laboratory investigations in the study of bone healing have been continued on the Fracture Service. These include fractionation of solid material from ten-day rabbit callus with respect to its solubility in water and aqueous solutions; the study of the distribution of nitrogen, calcium, and uronic acids in the foregoing fractions; the study of monopolysaccharide fractions from joint fluid and fracture fluid, with respect to nitrogen content and viscosity, for

comparison with similar fractions to be obtained from callus of various ages; the study of accelerated decalcification of bone tissue; and the study of x-ray diffraction patterns of human bone at various age levels.

Among the clinical studies being carried on by the Fracture Service are extension of the work in articular replacements, intramedullary pin fixation, adjustable internal fixation for the hip, and internal fixation for fractures of the scaphoid. Clinical research has been continued on pathological conditions of the shoulder girdle, the elbow joint, and the lumbosacral regions.

## DEPARTMENT OF OTOLARYNGOLOGY

Professor EDMUND P. FOWLER, JR., Executive Officer

The teaching of otolaryngology to third-year medical students was limited, as in previous years, to six didactic lectures of one hour each and ten afternoons devoted to outpatient work, ward rounds, surgical clinics, and a quiz. In an attempt to augment the undergraduate teachings of otolaryngology students were assigned to the Pediatrics Clinic as consultants, just as they are assigned to the Group Clinic. Fourth-year students should have a little more opportunity to observe ear, nose, and throat diseases, when such conditions exist in their patients. It is to be hoped that clinical clerkships can be arranged on the eleventh floor of the Presbyterian Hospital and the fifth floor of Babies Hospital to further augment teaching of ear, nose, and throat to medical students.

The basic science courses for ear, nose, and throat residents of the hospitals affiliated with the University were carried out, as in previous years, in the six-month period between January and July—the busiest season for ear, nose, and throat men. The courses might be improved, and certain additional material could be covered, if some of these courses were scheduled in the slacker period, i.e. from October to January.

The residency staff in the Presbyterian Hospital has been increased from six to eight men thus allowing time for correlating studies in allergy, neurology, pediatrics, facial-maxillary surgery, surgical pathology, etc. More investigative work has been done by the residents than in previous years but this has been largely clinical because of lack of laboratory space. Dr. Fernand Montreuil has worked on the anomalies of the epiglottis and has published a report on a case of bifid epiglottis which was successfully treated by amputation. Dr. Louis Royer has studied pyocyanus infections of the external ear. Dr. Walter M. Glass, assisted by Dr. Antonio M. Pineda, and with Drs. Eduardo R. Pons, Jr. and Bettina B. Garthwaite of the Department of Medicine, has done a carefully controlled study of the use of penicillin aerosol in chronic sinusitis.



This group has shown that aerosol therapy is only occasionally successful for chronic sinusitis when it is used once a day as in office practice. Dr. Melvin R. Link has been studying the ear, nose, and throat conditions to be found in patients with cerebral palsy. Dr. Lewis A. Shepperd studied, in the Greystone Project, the vestibular reactions of patients before and after lobotomy and topectomy. In addition he has been pursuing experiments on the production of bone from the neuro-vascular effects of the application of cold to bony surfaces.

The Department has had a great many visitors from other clinics in this country and abroad. The majority of the visitors came to see the audiology clinic for auditory rehabilitation and the testing of hearing. Others came to see the advances in otolaryngology such as those in endoscopy, laryngeal surgery, and ear surgery (copho-surgery). There have been many requests for short courses in operative surgery, audiology, and endoscopy. Although the Department feels some obligation to those who have been deprived of advanced medical education by the war, it is difficult to provide more than a casual observation without interfering with the educational program of the residents and the medical students.

Professor George R. Brighton has given his usual course in endoscopy, and Dr. Daniel C. Baker, Jr., has instigated a course in endoscopy for anaesthetists and chest surgeons. In addition he has given his usual course on the ear, nose, and throat to the student nurses.

Professor Emeritus John D. Kernan has begun a study of cancer of the larynx, using reconstructive methods. This has been possible through the generosity of the Weiler Fund and the Department of Pathology, which has lent him laboratory space. In addition he has been giving introductory clinical demonstrations on the examination of the ear, nose, and throat to third-year medical students.

Professor Fowler, assisted by Mr. Carl Feind of the second-year class and other members of the Department, has continued his researches, under a grant from the United States Public Health Service, on the imbalance caused by streptomycin therapy. It was shown that the toxicity of streptomycin is almost directly proportionate to the dosage and can be controlled somewhat by antihistamin. Mr. Feind, carrying on salamander experiments in the Department of Anatomy, has shown that streptomycin toxicity does not occur before the development of the labyrinth. An interesting by-product of these studies has been the discovery that streptomycin can be used successfully in the treatment of Meniere's disease. Professor Fowler has also continued his experiments on the bacteriology of superficial infections and contaminations in the ear. With the assistance of the Department of Surgery, new drugs for topical application have been developed.

Professor Franz Altmann and Dr. Montreuil have initiated studies on the operative treatments for Meniere's disease. Dr. Montreuil, in conjunction with the streptomycin studies mentioned above, has been working out quantitative tests for the labyrinth and, with Dr. Margaret W. Lawrence of the Babies Hospital, has found that nystagmus is present in new-borns in spite of general belief to the contrary. They are studying the development of nystagmus in various age groups. Incidentally, Mr. Feind has discovered that nystagmus is not present during normal sleep. This fact has been confirmed by Drs. Montreuil and Lawrence. Dr. Jules Waltner has continued his studies on the labyrinthine fluid, the nerve tumors of the ear, and the roentgenography of the temporal bone. Professor De Graaf Woodman has been studying the improvement of hearing of the contralateral ear following fenestration surgery, and has continued his work on arytenoidectomy for recurrent laryngeal palsy following thyroid surgery.

Professor Fowler was one of the three Americans invited to the Collegium Otolaryngologicum in Brussels and is now one of the ten members permitted from this country. He also gave a series of lectures for the graduate courses in otolaryngology at the Universities of Michigan and Pennsylvania. At the Philadelphia College of Physicians and Surgeons he gave a lecture on the psychosomatic afflictions of the nose; to the Trudeau Society he lectured on streptomycin poisoning in the treatment of tuberculosis. He has made contributions to the Army, Navy, and Veterans Administration meetings on audiology and streptomycin therapy, and was instrumental in aiding these services in drafting new standards for hearing.

Mrs. Geneva Gormley has made a beginning in speech therapy by training and testing cases of cerebral palsy for the Department of Pediatrics. This has highlighted the necessity for a director of speech therapy and at least one full-time speech therapist to augment the work on oesophageal voice and the teaching of the deaf and the hard of hearing, done in the Department by Mr. Meenan.

## DEPARTMENT OF PATHOLOGY

Professor HARRY P. SMITH, Executive Officer

The past year has seen increased use of visual aid in the teaching of pathology, both in the general laboratories and in small seminar rooms provided with modern projection equipment. It is apparent, nevertheless, that the autopsy room is so small and crowded that students are seriously handicapped in their efforts to see and study fresh tissues from current cases. Plans have been made for alteration of the autopsy suite to provide the needed facilities for teaching. It is hoped that these changes can be made in the near future.

The research program in general pathology has progressed in a gratifying manner. Professor Joseph E. Flynn and Dr. Eugene T. Standley are studying the accessory factors concerned in the conversion of prothrombin to thrombin. Dr. Joseph Seronde's investigations have dealt with antithrombin. Dr. Bruce Brown, in collaboration with Professor Dan H. Moore of the Electrophoresis Laboratory, has studied certain hematological changes in animals with vitamin K deficiencies.

In neuropathology, Professors Abner Wolf and David Cowen have conducted a program of study on prenatal equine encephalomyelitis. This is a continuation of their work on transplacental transmission of toxoplasmosis and is part of a larger project on prenatal factors involved in disease of the nervous system. Work on acute disseminated encephalomyelitis in the monkey is being conducted in collaboration with Professor Elvin A. Kabat of the Department of Bacteriology and the Neurological Institute. In collaboration with Professor Murray Sanders of the Department of Bacteriology, Professors Wolf and Cowen are engaged in a study of the chemotherapy in acute poliomyelitis in mice and monkeys. They have also been associated with Professor Frederick Mettler and other members of the Department of Neurology in working under the Greystone Project.

Dr. Dorothy H. Andersen has continued her study of meconium ileus, pancreatic deficiency, and celiac disease in collaboration with members of the Department of Pediatrics. This work and related studies are described in the report of that Department.

Research on arteriosclerosis has continued under the direction of Professor Henry S. Simms. With the assistance of Dr. Mary S. Parshley he has found increasing evidence that the fat deposits of atherosclerosis are primarily due to the action of "lipfanogens" in the blood plasma. The "antilipfanogen," also present in blood plasma, serves to prevent fat deposition. In diabetics and nephrotics having high incidence of arteriosclerosis, the relative concentration of antilipfanogen is low. With the coöperation of Professor Kenneth B. Turner of the Department of Medicine, it has been found that patients having high blood cholesterol have low antilipfanogen, and hence greater fat depositing tendency.

Professor Theodore F. Zucker has made notable contributions to the study of appetite depressants. Of particular interest is Professor Zucker's work with Dr. Lois M. Zucker on zoöpherin. The demonstration of an abundance of zoöpherin in protozoa of the gastrointestinal tract of herbivores indicates not only how the needs of this group of animals are supplied on exclusively vegetable diets, but also how omnivores obtain zoöpherin by eating the meat of herbivores.

Dr. Hans Kaunitz has studied the influence of tocopherol on implantation

of the ovum in rats. Experiments concerned with ovarian and uterine function are being carried out in order to study the mechanism for failure of implantation. Studies have also been made upon the influence of vitamin E on growth and muscular activity. Other investigations with vitamin E involve the collaboration of Professors Harry B. van Dyke of the Department of Pharmacology, and Karl Mason of the University of Rochester.

Mrs. Julia T. Weld has continued her studies on antibiotics in close association with work being done in the Department of Dermatology.

The various projects reported show a gratifying tendency toward development of activities in a number of widely separated fields. The diversified interests give breadth to the activities of the Department, which still maintains a sense of healthy integration and interdependence of the various units.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN McINTOSH, Executive Officer

A nation-wide survey of the care of illness and preservation of health of infants and children revealed that 75 percent of the medical care given to patients in the pediatric age group is rendered by general practitioners. Pediatricians claiming special training in their field accounted for 12 percent. Since every student is potentially a general practitioner until he narrows his field of study to one of the recognized specialties, the importance of including in the undergraduate clinical curriculum an adequate grounding in pediatric experience gains added factual support.

While the lengthening of the fourth-year course from approximately eight months to twelve months was undertaken before the results of the Academy survey had been reported, the resulting addition to the teaching time allotted for pediatrics falls well in line with requirements thus brought out. Under the revised schedule, first put into operation during the academic year just past, each fourth-year student now spends two months in pediatrics, as contrasted with approximately one month on the old schedule. The new arrangement permits an obvious improvement in the student's preparation.

The residency training program concentrates on the preparation of specialists in the clinical field of pediatrics. Owing to increasing recognition of the value of specialized training at the residency level, the number of applications for house-staff positions has risen beyond precedent. It has been judged prudent to reorganize the Hospital's house staff in such a way as to accommodate the maximum number of candidates. One result of this action is the closing of the Babies Hospital internship to recent medical school graduates seeking their initial hospital training service, in order to make more places

available for applicants at the resident level. An ancillary change, which will first go into effect on July 1, 1948, is the inclusion in the residency experience of a tour of duty in the pediatric-psychiatric clinic under the supervision of Professor William S. Langford. This step takes into account the need for psychiatric orientation in all phases of clinical pediatrics and, because it is believed to be unique, will be watched with interest by all those who are engaged in the teaching of pediatrics as a clinical specialty.

The research program of the Department has made full use of the limited laboratory space not required in routine diagnostic work. Professor Donovan J. McCune has studied disturbances of the tubular portion of the nephron, the renal functional unit. He has also continued, in collaboration with Professor Charles L. Fox, Jr., of the Department of Bacteriology, a survey of the partition of certain electrolytes among tissue cells and extracellular fluids in nephrosis and in other clinical disorders. In his presidential address given before the meeting of the Society for Pediatric Research in Atlantic City in May, Professor McCune reviewed the subject of refractory rickets.

Professor Hattie E. Alexander has extended her studies on the mechanism of acquisition of resistance on the part of pathogenic microorganisms to the lethal action of antibiotic agents. These studies throw light on the differences among organisms in their response to streptomycin as used in clinical therapy. With the assistance of Mr. Carl R. Feind of the second-year class, and Dr. Margaret Lawrence, Fellow of the National Research Council, and in collaboration with Professor Edmund P. Fowler, Jr., of the Department of Otolaryngology, ingenious techniques have been developed for the study of unfavorable reactions exhibited by patients undergoing treatment with streptomycin. Inquiry into the chemical structure of *H. influenzae*, carried out in collaboration with workers in the biochemical laboratories of McGill University, continues to progress. All of these projects have been aided by generous grants from the Commonwealth Fund. Professor Alexander's evaluation of the comparative efficacy of different antisera and chemical agents in the treatment of whooping cough continues to receive support from the United States Public Health Service. Under a grant from the National Institute of Health, and in collaboration with several other institutions, a study of the value of streptomycin and other adjuncts in treatment of some of the more severe forms of tuberculosis has been undertaken.

Professor Richard L. Day has been engaged in a long-term assessment of end results following treatment of erythroblastosis neonatorum by massive transfusion of blood. Psychometric tests on survivors have been carried out by Mrs. Joan Gerver. Efforts to reproduce the disease picture in experimental animals by intravenous injection of incompatible blood have been fruitful in spite of formidable technical difficulties encountered. These projects have

been assisted by contributions from the John and Mary R. Markle Foundation and from the Blood Grouping Laboratory.

In spite of the long illness of Professor Beryl H. Paige, whose absence has thrown a heavy burden of routine work on the other members of the staff of the pathological laboratory of Babies Hospital, Dr. Dorothy H. Andersen has been able to continue, though at a necessarily slower pace, her valuable studies of the pathologic physiology of chronic nutritional disorders of infancy and early childhood, which have for some years received generous support from the Commonwealth Fund. An outstanding contribution, made in collaboration with Dr. Robert B. Hiatt of the Department of Surgery, has been the demonstration that the vast majority of cases of meconium ileus, a surgical emergency of earliest infancy, are caused primarily by deficiency of pancreatic secretion in intrauterine life. Until recently almost uniformly fatal, this type of intestinal obstruction has now been shown to lend itself to successful correction by methods worked out in the main by Dr. Hiatt. Dr. Robert N. Phillips, holder of the Koplik Children's Scholarship, has studied and reported a rare instance of primary hyperparathyroidism occurring in a young infant.

A long-term study of the effects of infectious disease occurring in the mother during the course of pregnancy, on the fetus in utero, or on the infant subsequently born continues to engage the interest and organizing skill of Dr. Katharine K. Merritt. With her are associated Drs. Elinor F. Downs and Mary Hyman. Recently, important additional aid has been obtained from the Snyder Ophthalmic Foundation through the interest and active coöperation of Professors John H. Dunnington and Algernon B. Reese of the Department of Ophthalmology. Through their participation competent examination of the eyes is assured for the population included in the survey. Dr. David M. Greeley's related study on the remote effects of neonatal anoxemia, which is also generously supported by a grant from the Rockefeller Foundation, represents a comparable effort to gather objective evidence in a field of inquiry which up to now has been overburdened with speculation and unsubstantiated dictum.

Professor John Caffey has collaborated in the Fluorine Dental Study promulgated by the New York State Department of Health, his contribution being the interpretation of roentgen films of the bones of the thousand or more children of the experimental and control groups. Dr. Paul A. di Sant' Agnese's investigation of the protective response exhibited by very young infants to the injection of immunizing antigens has thrown new light on the practicability of initiating these prophylactic procedures during the newborn period. His project has received support from the Cutter Laboratories. Dr. Ruth C. Harris, in coöperation with the Departments of Anesthesiology and Otolaryngology, has devised a program of treatment of tetanus which has proved successful in a limited number of cases of unusual severity. Working

under a National Research Council Fellowship, Dr. Rose G. Ames has made a study of plasma proteins in a variety of clinical syndromes.

Several promotions have been made among the instructional staff. There have also been a number of retirements under the new policy of age limitation jointly entered into by the University and the Hospital. Because of their long connection with the Department of Pediatrics, representing years of service to the University with little or no compensation except the joy of teaching and the pleasure of association in the academic family, special mention should be made of the contribution which this Department recognizes on the part of Professor Murray H. Bass, Dr. Leonard T. Davidson, Dr. B. Wallace Hamilton, Dr. Charles A. Lang, and Professor Howard H. Mason. Dr. S. Dow Mills resigned in order to accept a position on the staff of the Mayo Clinic. Dr. Frederick N. Silverman has accepted the post of roentgenologist in the Children's Hospital of Cincinnati.

## DEPARTMENT OF PHARMACOLOGY

Professor HARRY B. VAN DYKE, Executive Officer

Two members of the staff holding the position of Instructor, Drs. John A. Beyer and Irving A. Coret, resigned at the end of the academic year. Dr. Beyer has accepted a clinical position at the Cornell University Medical College; Dr. Coret has been granted a fellowship to secure advanced training in general pharmacology at the University of Pennsylvania. Miss Natalia A. Tupikova resigned as an Assistant to accept a similar position in the University of Chicago. Professor Alfred Gellhorn resigned as Associate Professor and has been appointed Associate Clinical Professor of Cancer Research. Fortunately, arrangements have been made for him to continue to participate in the Department's program of teaching.

Scope and emphasis in the program of teaching were advantageously modified. New equipment, which will greatly aid the future teaching of medical students, was added to the large student laboratory. As in the past special lectures were given by members of other departments. Particularly helpful in this regard were Professors Virginia Apgar, John W. Fertig, Leonard J. Goldwater, Edith H. Quimby, and Dr. John Taggart. Dr. Bradford N. Craver, of the research laboratories of Ciba Pharmaceutical Products, demonstrated the effects of a digitalis glycoside on cardiac output. The courses for residents, under the direction of Professor Alfred A. Gilman, were excellently attended. Professor Gellhorn and Professor Hamilton Southworth, of the Department of Medicine, offered the course in pharmacology and therapeutics to the fourth-year class.

The extremely crowded conditions under which departmental research has

to be conducted limit the number of graduate students who can be accepted. This unfortunate situation will continue until additional space on the seventh floor can be made available after alterations and building is undertaken elsewhere.

An important aspect of the research activities of the Department is the study of the functions of the kidney by Professor Gilman and his group. In collaboration with Dr. Gilbert Mudge and Dr. James Foulks, a third-year medical student, intensive investigations have been pursued on the renal mechanisms for the reabsorption and excretion of electrolytes and the effect of diuretic drugs thereon.

The investigation of the gametogenic hormone of the anterior pituitary, thy-lakentrin, has made sufficient progress so that the hormone can now be isolated in nearly pure form. Dr. S. Y. P'an, Professor van Dyke, and Dr. Theodore A. Shedlovsky of the Rockefeller Institute are working jointly to complete this project. Dr. P'an has shown that unlike some hormones, thy-lakentrin is not strikingly inactivated by the liver. Dr. Everett W. Maynert and Professor van Dyke are continuing their studies of the manner in which barbiturates are broken down by the body. Dr. Coret completed an investigation of the blood-pressure alterations in response to various drugs after drug paralysis of the sympathetic nervous system. Mr. John B. Hill continued the search for drugs which might replace insulin. Dr. P'an, with Drs. Charles A. Slanetz and Hans Kaunitz, investigated the effects of vitamin E deficiency on the anterior pituitary.

Last year the work of Professors Gellhorn and Karl Meyer on the lysozyme content of stools was mentioned. This work has now been extended in association with Drs. William Lehman and John Prudden. The enzyme lysozyme appears to play a significant part in the development of chronic ulcerative colitis, the cause of which is not otherwise apparent. Professor Gellhorn has continued his study of drugs suitable for the treatment of human cancer. The most useful is a nitrogen mustard which, although not curative, is of great value as a palliative drug in the treatment of selected types of malignant disease. The investigation of related drugs is in progress. Dr. Logan O. Jones attempted to use cultures of malignant growths to screen drugs of possible value in cancer. However, he found that such cultures are easily inhibited by a variety of non-specific substances. Dr. Jones showed that splenic, muscle, and renal tissue do not interfere with the growth or inoculability of malignant tumors derived from animals, although such an effect might have been expected.

Professor Gilman was elected Honorary Fellow of the American Academy of Allergy. Professor van Dyke was elected Vice President of the American Society for Pharmacology and Experimental Therapeutics.



## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

The staff of the Department has been strengthened this past year by a number of promotions and appointments. The advancement of Associate Professor Walter S. Root to the rank of full Professor is reported with particular satisfaction. Professors Thomas H. Allen and Wilson C. Grant have advanced to the position of Assistant Professor. The vacancies thus created were filled by Drs. Herbert L. Borison and Monica Reynolds. Dr. Clarissa H. Beatty resigned to accept the position of Assistant Professor in the Department of Physiology at the University of Oregon and this instructorship was filled by Dr. Thomas Fleming, who will join our staff in the fall. Two of our graduate students, Mr. Norman Alpert and Miss Ruth Lester, have been appointed as teaching Assistants for the coming year.

Changes in the first-year curriculum were adopted this year to permit the student to devote his entire attention to the closely allied subjects,—physiology and biochemistry. Opportunities for student presentation of data obtained from their own experiments, and discussion of this material with reference to the literature pertinent to the subject, have also been extended in small department symposia. The course in advanced human physiology, under the direction of Professor Shih-Chun Wang, was presented to sixty hospital residents during the year.

Final publication of the findings based on war research projects has resulted in the appearance of a number of interesting papers from this Department during the past year. Development of the electrophysiology laboratory has been continued by Dr. William L. Nastuk. The present investigations are concerned with the influence of varying concentrations of sodium and potassium on the rates and degrees of depolarization and repolarization of electrically stimulated nitella cells.

During the year Professor John L. Nickerson was granted a United States Public Health Service research grant for work on the ballistocardiograph. Studies also were continued, in collaboration with Professor Robert L. Levy and Dr. James A. L. Mathers of the Department of Medicine, on the effect of digitalization on the cardiac output. A study of the variation of the pressures in the venous bed in the presence of an arteriovenous fistula was carried out by Professor Nickerson at Emory University, in association with the Department of Surgery at that institution.

Professor Wang has been working with Dr. Herbert L. Borison on a study of the central nervous control of the coughing mechanism. He has published, in collaboration with Dr. Leslie F. Nims, a report on an interesting new

method for the automatic recording of pulmonary ventilation in unanesthetized animals. Dr. Borison has completed a study of the spasmodic respiratory center.

Dr. Marjorie Zucker, Research Fellow under the Baruch Grant for Physical Medicine, has investigated hemostasis and thrombosis in animals made fibrinogenopenic by the injection of thrombin. Her studies of the effects of the anticoagulants, heparin and dicumarol, on frostbite are nearing completion. At present Dr. Zucker and Mr. Douglas Tompkins, a third-year medical student, are continuing the work begun last summer on the measurement of fluid compartments, osmotic pressure, and the response to isotonic saline in plasmapheresed dogs. Dr. Louis Cizek is studying the renal function of these dogs.

Professor Wilson C. Grant is continuing his research into the nature and site of the primary stimulus for erythropoiesis. Professor Thomas H. Allen and Dr. Peter D. Orahovats have presented a method for the estimation of traces of the dye T-1824 in certain biological fluids.

Professor Gregersen, in collaboration with other members of the Department, has begun a study of the total circulating red-cell volume using recently developed techniques for the more precise determination of radioactive iron in the cells. This work is being carried on in association with members of the Brookhaven National Laboratories at Upton, New York.

Professor Root and Dr. Orahovats have undertaken a critical analysis of the role of the spleen as a reservoir for red blood cells and the rate of exchange of cells within the splenic pulp.

Professor William Walcott, in association with Dr. Ingrith Deyrup, Assistant Professor of Zoölogy at Barnard College, has recently described a profound reflex slowing of the heart in cats and dogs in response to the intravenous injection of small amounts of hypertonic solutions. Dr. Monica Reynolds has made a study of the cardiovascular and renal response to massive saline infusion given to dogs in hemorrhagic shock.

Dr. Cizek has completed his research on the effect of osmotic diuretics and electrolyte excretion, begun last year in association with Professor Joseph H. Holmes. In conjunction with Professor Gregersen, studies were resumed on the mechanism of thirst, especially that phase dealing with thirst produced by the intravenous injection of hypertonic solutions.

The facilities of the Department continue to be available to students in the upper classes of the Medical and Dental Schools for work on relatively short-term projects. It is gratifying to see the interest with which this work is pursued and the generally high quality of the results.

Professor Gregersen, as President of the American Bureau for Medical Aid to China, and Professor Root plan to visit the important centers of medical education in China where they have been invited to give lectures and demon-

strations, before their scientific colleagues, for the exchange of recent advances in physiology.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

During the year the staff of the Medical-Psychiatric Division has approximately doubled. This has been paralleled by a corresponding growth in the Psychosomatic Clinic of Vanderbilt Clinic. The over-all expansion has been possible largely through additional personnel made available through the Psychoanalytic Clinic for Training and Research. The increase in staff has been reflected in the activities of the Division and Clinic, for the teaching, research, and clinical programs have all been considerably enlarged.

Six new staff members were added to the Division during the past year. Dr. John A. P. Millet has continued his interest in allergic and dermatologic conditions and is serving as intake psychiatrist and instructor in the Psychosomatic Clinic. Dr. Jacob Arlow is continuing investigative work in angina pectoris and rheumatoid arthritis and is also serving as Instructor in the Clinic. Drs. Aaron Karush, Norman Rucker, Walter Stewart, and Leon Moses have also joined the staff. They are engaged in the research and routine consultation work of the Division. In addition to the six new staff members, Dr. Harry Stalker, from the University of Edinburgh, Scotland, has been working during the year in the Division and Clinic as a Commonwealth Fellow.

Dr. Henry H. Hart is still on leave from the Clinic and expects to continue his research with the Department of Ophthalmology at the Eye Institute for another year. Dr. John Kinley resigned in July. Dr. George Lawton left in October. Dr. Sidney Rubin has been on leave since November and is now working at the Winter General Hospital in Topeka, Kansas.

For the past year our consultation load has increased 20 percent over the previous year. Due to a larger staff we were able to give better coverage and, in many instances, follow-up treatment. During the year, fifty-two psychiatrists were associated with the Department of Psychiatry at Vanderbilt Clinic.

The number of situations brought to our attention by principals, teachers, school doctors and nurses emphasizes the many unmet needs for psychiatric evaluation and guidance of seriously disturbed children attending the public schools. Social Service continues to receive a great number of telephone inquiries concerning psychiatric clinic and hospital resources, and some requests for names of private psychiatrists and hospitals. These requests underscore the great dearth of clinic resources for the Bronx, Long Island, and New Jersey communities.

The staff of the Psychosomatic Clinic has the following members: Drs.

Nathan W. Ackerman, Jacobs A. Arlow, Hilde Brush, John A. P. Millet, Ruth Moulton, and Professor George E. Daniels. There have been eight postgraduate students seeing patients, and one visitor. During the year sixteen patients were seen intensively, thirteen were seen three to twelve times, and nine were seen once or twice.

The undergraduate, graduate, and postgraduate instruction program has been heavy throughout all of the Institute and other psychiatric divisions. This program constitutes one of the major contributions to the general medical field as well as to psychiatry. Seven postgraduate physicians were given certificates for having completed the three-year residency training in psychoanalytic and psychosomatic medicine.

The undergraduate teaching program of the psychosomatic division has been enlarged this year to include the resumption of instruction of the third-year clinical clerks serving on the Medical Wards with expansion to ten hours per trimester as compared to the three hours formerly given. The lack of previous psychiatric instruction constituted a definite handicap in our program.

In line with the growing coöperation with other clinical departments, similar undergraduate teaching should be organized in obstetrics and gynecology, surgery, and other medical and surgical specialties. Such teaching acts as a necessary check on the efficiency of our over-all psychiatric instruction, and shows clearly the importance of beginning instruction in the first year where a basic foundation should be laid in psychodynamics. In the second year it would seem advisable to introduce students not only to psychopathology but also to the essentials of examination and history-taking so that they may profit fully from their third-year clinical experience.

Professor Daniels was again invited to give a presentation in the Correlation Clinic for first-year students in physiology. Two patients were presented, illustrating uncomplicated physiological reactions to emotional stimuli.

Regular courses in psychoanalytic and psychosomatic medicine for the second-year graduate students in the Psychoanalytic Clinic for Training and Research were given. These courses were conducted with the assistance of staff instructors and visiting lecturers. In the Psychosomatic Clinic students were given instruction through control sessions on their patients, thus correlating clinical and didactic material.

Dr. Moulton repeated her course, Psychiatry and Psychosomatic Medicine as Applied to Dentistry, for postgraduate dental students. This is a major course in the Division of Graduate Studies of the Dental School. Dr. Kenneth Kelley taught two courses in psychosomatic medicine to technicians in the Department of Physical Therapy. At the invitation of Professor William B. Snow, he will increase his teaching hours in this Department next year.

The teaching program in the Clinic has been organized more effectively

through regularly scheduled control sessions with the individual student. Sufficient time was also set aside for carefully supervised student work-up of the records, thus necessarily limiting the patient load. Dr. Nathan Ackerman has devised a schematic outline of the current personality evaluation of psychosomatic patients which is being applied to each patient in the Clinic.

With the impetus of the recently organized Psychosomatic Clinic in Vanderbilt Clinic as a teaching and research medium, and with the junior staff made available through the Psychoanalytic Clinic for Training and Research, the Medical-Psychiatric Division has been expanded in all fields. During this year of expansion the space in the Vanderbilt Clinic has been radically cut. Representation of our pressing needs has been made to the various responsible authorities and it is hoped that by fall room will be made available; otherwise our projects, for which we have already received funds, will be radically crippled.

At the Vanderbilt Clinic the third-year teaching has continued on Mondays and Wednesdays. Monthly teaching-staff conferences have been held this year concerned chiefly with the problems of teaching psychiatry to undergraduate students in an outpatient setting. A one-way mirror and amplifier are being installed which will permit a small group of students to observe a psychiatric interview in a reasonably standard consulting room without embarrassment to the patient.

Fifty-two articles and books have been published by members of the staff during the year and seventy-eight additional lectures and papers have been presented to scientific and medical groups outside the University.

At the Psychiatric Institute a number of important research projects have been under way during the year. They include a new technique for isolating the brain circulation from that of the rest of the body; a study of lipids in the blood serum of psychiatric patients; an investigation of higher fatty aldehydes; the effects of glutamic acid on subaverage children, and metabolism of glutamic acid; a study of nucleic acid in various structures of normal and pathologic brains; the amino-acid metabolism in mental patients, and experimental epilepsy in monkeys; experimental encephalomyelitis in monkeys; histologic and histometabolic studies on brain biopsies; studies in medical genetics, electronarcosis therapy, and differential diagnosis between early schizophrenia and psychoneurosis; and psychosomatic studies on the families of criminal offenders. In psychosomatic medicine three major research projects are now under way in essential hypertension, amenorrhea, and ulcerative colitis.

Aided by a grant from the National Committee for Mental Hygiene, and with the coöperation of the Departments of Medicine, Neurology, and Physiology, the research project in hypertension is progressing under the supervision

of Professor Daniels. A beginning has also been made in psychiatric evaluation of cases, by Professor George A. Perera of the Department of Medicine, of the role of the adrenal cortex in hypertension. Another phase of the project, that of investigating the correlation between the physiological and psychological aspects of hypertension, is commencing. The measurement of the total peripheral resistance on selected patients will be clinically determined by the use of Professor John L. Nickerson's ballistocardiograph together with a sphygmotonomograph for continuous measurement of blood pressure. From the cardiac output values and the mean blood pressure, the total peripheral resistance will be calculated.

The preliminary phase of the project for investigating the psychological factors in amenorrhea, the reviewing of literature, and studying sample cases is now drawing to a close. This is being followed by the intensive psychiatric investigation and treatment of amenorrheic patients in conjunction with physiological studies carried on under the direction of Professor Charles L. Buxton in Sloane Clinic.

The project for research in the psychosomatic aspects of ulcerative colitis is being carried on with the coöperation of the Departments of Medicine, Surgical Pathology, Surgery, and Physiology. Drs. Aaron Karush, Norman Rucker, and Walter Stewart have completed a comprehensive review of the literature on ulcerative colitis, to be submitted for publication.

## SCHOOL OF PUBLIC HEALTH

Professor HAROLD W. BROWN, Acting Associate Dean and Director

Dr. Harry S. Mustard, Professor of Public Health Practice and Director of the School, was granted a leave of absence in November in order to become Commissioner of Health of the City of New York.

The teaching program in industrial hygiene was considerably expanded by Professor Leonard J. Goldwater. In addition to a number of new courses, established for medical people with a special interest in the field of industrial medicine, curricula were also instituted for industrial engineers and nurses. The teaching of the latter groups was facilitated by the assignment here of Miss Emily Smith from the Public Health Service.

Under the guidance of Miss Sophie P. Williams and other members of the staff the curriculum in health education was more completely crystallized during the past year. The School plans to expand further this phase of its activity since there is a growing demand for adequately trained people in this field of public health.

Important changes have been effected in the teaching of epidemiology, sanitary science, and medical entomology. These have been facilitated by the

appointments of Dr. Louis Zeidberg as Assistant Professor of Epidemiology, Mr. Charles C. Spencer as Assistant Professor of Sanitary Science, and Dr. Roger W. Williams as Assistant Professor of Medical Entomology. Dr. Williams was aided in building up his entomological collection by the award of a traveling fellowship from the Rockefeller Foundation. Professor John E. Goreell, assisted by Miss Mary A. Johnson, has further expanded the program in hospital administration.

In the field of research, Professor E. Gurney Clark has been engaged in studying the epidemiology of syphilis with particular emphasis on reinfection and relapse. This problem was undertaken in collaboration with the Department of Dermatology, and the Department of Health of the City of New York. The program is supported by the United States Public Health Service. Miss Anna Cheskis is concluding the analysis of the laboratory material on streptococcus hemolyticus and its relation to rheumatic fever.

Professor Goldwater and Dr. Maurice E. Shils have continued to work on nutritional factors in relation to industrial poisoning. This work is supported by the United States Public Health Service and the United States Army Quartermaster Corps. Professor Goldwater is also engaged in several projects concerning hazards of radioactive materials. These projects are supported by Atomic Energy Commission grants.

Professor Brown and his associates have continued to work on the chemotherapy of filariasis and on the usefulness of DDT in controlling filariasis. Much of the field work on filariasis is conducted in the Virgin Islands. These studies are supported by the John and Mary R. Markle Foundation. Professor Brown and Dr. Kathleen L. Hussey have continued their work on amebiasis. This work is partly supported by various pharmaceutical companies.

Professor John W. Fertig and Miss Lillian R. Elveback have continued to give advice to the various departments of the Medical Faculty in planning research projects and in analyzing the results of such projects. Professor Goldwater has continued his activity on medical administrative problems in industry in particular relation to rehabilitation. Professor Clark has served on numerous occasions as a consultant on problems related to syphilis. He has also participated in a project of Columbia University and the United States Public Health Service to develop radio programs devoted to case finding in venereal-disease control.

Professor James Troupin was granted a leave of absence to observe the functioning of the administrative organization of various states' health departments. Professor Henderson has served as a consultant to various public health agencies on problems of training personnel, rodent control, and malaria control. He was also granted a short leave of absence to make a sanitary survey of the rapidly expanding oil communities in Kuwait.

Professor Brown spent two months at the School of Tropical Medicine in Puerto Rico observing the administration of the School and planning fuller integration with Columbia University. During the past year Professor Mustard served as President of the American Public Health Association and of the Association of Schools of Public Health.

## DEPARTMENT OF RADIOLOGY

Professor Ross GOLDEN, Executive Officer

A number of changes in the staff of the Department of Radiology have occurred. Following the resignation of Professor Maurice Lenz, Dr. Harold W. Jacox was appointed Chief of the Radiotherapy Division of the Radiological Service, and Professor of Radiology in the College of Physicians and Surgeons. Dr. Jacox came on duty July 1, 1947. It is with regret that we announce the resignation of Dr. Titus Evans, Assistant Professor of Radiology (*in Biology*) who left Columbia on December 31, 1947, to become Director of the Radiation Research Laboratory of the University of Iowa Medical School. On October 15, 1947, Dr. Ahmet Faruk Komili, Volunteer Assistant in Radiology, who had observed the work in the Department for almost three years, left to return to his native Turkey.

For the meeting of the American Roentgen Ray Society in September, 1947, Professor Golden organized a symposium on the stomach and intestine and, together with Professor Arthur P. Stout of the Department of Surgery, presented a paper on superficial spreading carcinoma of the stomach. This report was published in March, 1948. Professor Golden revised his chapter on the digestive tract in Nelson's loose-leaf, *Diagnostic Roentgenology*, of which he is editor. The revised edition appeared in the March, 1948, issue.

Professor Jacox, at the American Roentgen Ray Society meeting in September, gave an instructional course on the complications following irradiation of the pelvis, and a paper on post-irradiation ulcerations of the uterine cervix. In February, 1948, he presented a paper, on the palliative radiation therapy in carcinoma of the breast, for a postgraduate course in radiology under the auspices of the Philadelphia Roentgen Ray Society and the American College of Radiology. Professor Jacox was appointed to the editorial board of *Radiology* in December, 1947, and was elected an honorary member of the Pennsylvania Radiological Society in May, 1948.

Professor Robert P. Ball gave refresher courses on the stomach, duodenum, and small intestine at the meeting of the Radiological Society of North America held in December. Together with Dr. Omar K. Legant he presented a paper on sickle-cell anemia in adults. In January Professor Ball, with Dr.



Allan L. Segal and Professor Golden, published an article on post-bulbar ulcer of the duodenum. On June 13, Professor Ball received an honorary Doctor of Science degree from Centre College, Danville, Kentucky. Beginning June 30, Professor Ball has been appointed a member of the National Research Council representing the American Roentgen Ray Society for a three-year period.

Professor Ernest H. Wood published in January an article on the diagnostic significance of change in position of metallic foreign bodies in brain abscess. Professor Lois C. Collins published in February, together with Dr. Robert M. Lowman of the Grace-New Haven Hospital and Dr. Robert Shapiro of the National Cancer Institute, an article on the significance of the widened septum pellucidum. Dr. Morton M. Kligerman received a Master of Medical Science degree from Temple University in Philadelphia in June, 1948.

The work of the Radiological Research Laboratory has continued along the lines described in the 1946-1947 report, chiefly the studies undertaken, under the Atomic Energy Commission to which Professor G. Failla's time has been largely devoted. In addition to supervising this work in his own laboratory, he is Chairman of the Committee on Isotope Distribution. At the 1947 meeting of the Radiological Society of North America, Professor Failla was awarded the Society's gold medal for outstanding accomplishment in the field of radiology.

Professor Edith H. Quimby has spent a considerable part of her time in coöperative research problems, with various members of the clinical staff, using artificial radioactive elements. With Drs. Beverly C. Smith and Isidore Mufson the use of radioactive sodium in the study of peripheral vascular disease has been continued. It is interesting to note that other institutions are now commencing work along these lines. With Dr. Sidney C. Werner of the Department of Medicine the use of radioactive iodine in diagnosis of thyroid disorders and in treatment of toxic goiter has been extended. With Professor Virginia K. Frantz and other members of the Department of Surgery, and with the collaboration of Professor Evans, the uptake of radioiodine in various types of thyroid cancer has been studied. The use of radioactive phosphorus in the treatment of selected series of cases has been started by Professor Jacox. Professor Quimby is coöperating on dosage determinations and radioactivity studies of these patients.

Professor Evans divided his time between the Atomic Energy Commission problems and radiological research. The work in treatment of leukemic patients with radioactive sodium was carried on with Professor Lenz until July, and thereafter with Professor Jacox.

Some of Professor Evan's work done under the Atomic Energy Commission has now been released from security regulations for publication. In

particular he has presented his studies on the effects of small daily doses of fast neutrons on mice.

Professors Failla, Quimby, and Evans have appeared on the programs of national and local radiological societies, as well as other medical societies, and have given a number of lectures to medical and lay audiences. Nine papers have been published in medical journals by members of the laboratory staff during the year.

## DEPARTMENT OF SURGERY

Professor GEORGE H. HUMPHREYS, II, Executive Officer

During the past year the Department of Surgery has been saddened by the death of two of its outstanding retired members. Dean Emeritus Darrach was not only an active member of the Department throughout the period of his great contributions to the Medical Center as Dean, but also remained an interested participant in the Department following his retirement. His record is reviewed elsewhere in this report.

Professor Hugh Auchincloss had been a member of the Department since his appointment as Instructor in Pathology and Assistant in Surgery in 1909, four years after graduation from the College of Physicians and Surgeons. In 1926 he became Professor of Clinical Surgery, a position from which he retired only one year before his death. As one of the small group of exceptionally able men who assisted Dr. Allen O. Whipple in the reorganization of the Department in 1921, his contributions to the Medical School in teaching a generation of medical students are incalculable. An able surgeon and contributor to surgical knowledge, he was best known to us for his originality of thought, his unfailing enthusiasm in teaching and his tireless devotion to the care and comfort of his patients. To many of them he represented the finest traditions of the Medical Center as no other man has done.

Dr. David V. Habif, who joined the full-time teaching staff last July, has also continued to represent the Department on the team which has been attacking the problem of thrombosis and embolism. As a result of the successful introduction of anticoagulant measures in the prevention and treatment of these complications of operations and illnesses, we have succeeded largely in eliminating deaths from pulmonary embolism, and the previously disabling sequelae of venous thrombosis have largely been avoided. On January 1, Professor Ralph A. Deterling, Jr., joined our staff on a full-time basis and has devoted his time to working on vascular diseases. He represents the Department of Surgery on the study teams developed jointly with the Department of Medicine for work on hypertension and on diseases of the peripheral blood vessels.

This team pattern was laid down many years ago by Professor Emeritus Allen O. Whipple. During the coming year a similar clinic will be developed for the study of ulcerative colitis, in coöperation with the Departments of Medicine and Psychiatry.

During the year, the laboratory of surgical pathology has carried out its diagnostic functions for the surgical, fracture, otolaryngological, oral surgery, and the Vanderbilt Clinic services; to a limited extent for the medical service. It has acted also in a consultant capacity for many of the other hospital divisions. Consultation diagnoses and advice have been furnished to over 150 institutions in this and other countries.

Regular instruction in surgical pathology for second- and third-year medical students continues under Professor Arthur P. Stout and his staff, and post-graduate instruction in surgical pathology is given to ten hospital residents. The Surgical Department of McGill University has made it a practice to send one of their surgical residents to this laboratory for training as part of its regular course. There were thirty-three surgeons, fifteen pathologists, and two radiologists from foreign countries working in the laboratory. Among these were three Philipinos, three East Indians, one Chinese, one Pole, one Peruvian, and one Canadian. Three Fellows from the National Cancer Institute are now completing their first year of training with Professor Stout.

In the Tissue Culture Laboratory, Professor Margaret R. Murray has been carrying on a double project, supported by the American Cancer Society, dealing with the regeneration in vitro of normal adult cells. Studies are also being made of the growth in vitro of human thymus tissue, both normal and neoplastic, from individuals of different ages, and a variety of human neoplasms have been grown in vitro for diagnostic purposes.

The Tissue Culture Laboratory also serves as the office of the Secretary of the Tissue Culture Commission, an international service organization chiefly concerned, at present, with the production of the common tissue culture media of guaranteed quality for distribution from a central source, and the preparation of a bibliography of the published works on tissue culture. Grants have been made by the American Cancer Society to support these activities.

Convinced that sound teaching at both graduate and undergraduate levels depends upon the maintenance of the stimulus of active research, we have given every encouragement to the conducting of investigations by members of the teaching and resident staff. During the summer and fall of 1947, the Presbyterian Hospital completed installation of the special research surgical metabolism ward. With funds made available from the United States Public Health Service, metabolic studies on patients commenced January 1, 1948. We are pleased to have this opportunity to pioneer in the application of metabolic methods to the study of problems in the field of surgery.

Professor Arthur H. Blakemore, with the assistance of Dr. Arthur Voorhees, has continued his experimental work on the surgical treatment of aneurysms of the great vessels. He has also continued to work on the development of methods for the surgical treatment of various types of heart disease which have previously been beyond the scope of the surgeon. We are now entering a phase of intensive work on surgery of the heart and great vessels, and several members of the staff are studying closely related phases of cardiac surgery. Among those working on these problems are Professors Humphreys and Deterling and Drs. Ferdinand F. McAllister and Adrian Lambert. Dr. Voorhees has studied some of the electrical phenomena related to the clotting of blood and has developed a new and highly promising method for determining the rate of clot formation in patients. This year it became possible to assign Drs. Milton Porter and Elmer K. Sanders, of the resident staff, to six-month periods devoted exclusively to research. The work accomplished under this plan has amply justified the addition of a research period to the regular residency training program. Drs. Porter and Sanders have worked together on the development of techniques for rapid transfusion of blood into the arterial side of circulation in conditions of critical blood loss.

Dr. Porter also aided in carrying out an appraisal of a new antiseptic soap which will soon be introduced for routine use in the operating rooms and wards. Dr. Sanders has investigated the treatment of soft-part abscesses, and other types of localized infections, by means of local injection and application of antibiotic solutions. Infections, which formerly required disfiguring incisions, can apparently be treated without resort to operation.

Professor Cushman D. Haagensen has continued his highly productive collaboration with Professor Samuel Graff, of the Department of Obstetrics and Gynecology, in further characterization of the milk factor which causes breast cancer in mice. The ultra-microscopic particle in mouse milk which transmits the disease is being concentrated by chemical and physical methods and its immunological characteristics are being studied through the coöperation of Professor Michael Heidelberger of the Department of Medicine. An important objective of this study is to determine whether a protective antiserum can be developed against the effects of mouse breast-cancer virus. Professor Edward L. Howes has carried on further work, under a grant from the United States Public Health Service, on the factors concerned in the development of stomach cancer in experimental animals. He is also working on the chemical factors concerned in the removal of dead tissue in infected wounds and burns.

Recognition is being given, through two departmental projects, to the importance of disease of the gastrointestinal tract. Dr. Edmund Goodman has resumed his work on electrical potentials generated within the stomach and the significance of these potentials in the diagnosis of benign and malignant

disorders of this organ. Work on lysozyme in the pathogenesis of ulcerative diseases of the gastrointestinal tract has been proceeding through the efforts of Drs. John Prudden and William L. Lehman, in collaboration with Professor Karl Meyer of the Department of Ophthalmology. The application of this concept to the therapy of peptic ulcer and ulcerative colitis is now being explored. This work has been financed in part by the South American Fund for Gastro-Intestinal Research, established by Dr. Antonio Valenti-Mestre.

Professor Frank L. Meleney and Miss Balbina Johnson have carried the development of the new antibiotic bacitracin, to a point where the drug is now being used in the systemic and local treatment of infections which are resistant to penicillin and streptomycin. This work has been supported by a generous grant from the Medical Research and Development Board of the United States Army.

Professor Virginia K. Frantz has collaborated with Dr. Sidney C. Werner, Department of Medicine, and Professor Edith H. Quimby, Department of Radiology, in work on radioactive isotope iodine in the diagnosis of hyperthyroidism and in the diagnosis and treatment of malignant tumors of the thyroid gland. In addition to providing advice and administrative supervision of the research program of the Department, Professor John S. Lockwood has continued work on alterations in plasma fibrinolytic activity with particular respect to the pathologic physiology of peritonitis. With the assistance of Drs. Alfred Young, McLemore Bouchelle, Thomson R. Bryant, and Alfred Stojowski of the resident staff, the usefulness of orally administered streptomycin in preparing the large intestine for surgical operations has been evaluated by complete bacteriologic studies of the effect of this drug on the intestinal flora.

At Bellevue Hospital, Professor Frank B. Berry reported improvements in the graduate training program through incorporation of the admitting service into the teaching divisions; through interchange of assistant residents with the Greenwich Hospital and Cleveland Clinic; and through opportunities for three-month training periods in gynecology and urology, specialties not included in the Columbia Division. In addition the Chest Service coöperates with Medical Center in accepting, for three-month periods, an assistant resident from the Presbyterian Hospital. An additional six-month period of resident training in thoracic surgery has also been made available to men completing their training on the Bellevue Thoracic Surgical Service. Through such interchange of resident training, as well as through an increasing fusion of the attending staff members of the Columbia Division at the Bellevue Hospital with that of Medical Center, the teaching program is being brought into increasingly close integration.

Coördination of undergraduate teaching at Roosevelt and St. Luke's Hospitals in New York, and at the Mary Imogene Bassett Hospital in Coopers-

town, is progressing through the coöperation of Professors Henry W. Cave, William C. White, William F. MacFee, and Monroe A. McIver. Interlocking training on the graduate level was also begun. In the postgraduate field Professors Ralph Colp, John H. Garlock, and Arthur S. Touroff, at Mount Sinai Hospital, continue their able work.

During the Clinical Congress of the American College of Surgeons, held in New York in September, members of the Department conducted a number of clinics at Medical Center. Forty meetings were attended away from New York by members of the Department, and twenty-eight papers were presented. A total of forty-five articles on clinical and experimental subjects were published by twenty-four members of the Department.

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

During the year Dr. M. M. Masina resigned from his position as research assistant and returned to India. He has reported upon his investigations, under the Charles Mayer Fund, in the heterogenous growth studies of urinary tumors.

The undergraduate curriculum has been kept under personal teaching supervision and will only be changed when our facilities expand with the reconstruction in Vanderbilt Clinic. The program of graduate education has been carried on as formerly. Dr. Charles Lynch, under the guidance of Professor Earle T. Engle of the Department of Anatomy, continued his work on metabolic studies in hypogenitalism and cryptorchidism. Dr. George Barrett, under the guidance of Professor Hans T. Clarke, of the Department of Biochemistry and Professor A. B. Gutman of the Department of Medicine, continued his work on the metabolic aspects of urinary calculi with balance studies of calcium magnesium and phosphorous. He now is applying the results of his studies to patients. Dr. Robert F. Gehres has been working in the Department of Bacteriology on the chemical dissolution of stones using ethylenediaminetetraacetic acid. This work has been done with the guidance of Professor Beatrice Seegal. Dr. C. R. Southworth, under the supervision of Professor A. Gilman of the Department of Pharmacology, has been investigating the effect of terofterin and various estrogenic effects upon prostatic carcinoma. Most of these resident investigations have been aided by the Albert and Mary Lasker Fund.

Professor George W. Fish and Dr. T. W. Stevenson of the Department of Surgery have been developing a pedicle graft cutaneous-ureterostomy. They have submitted reports on this subject. Professor Fish has also been investi-

gating the effects of large doses of estrogens upon recurrent or metastasizing prostatic carcinoma. Professors John N. Robinson and Charles T. Hazzard reported on a study of congenital urinary anomalies in children. Professor Robinson also reported the effect of neutron radiation on the human testes. This was the first paper written on the subject. In addition he has continued the work upon sterility and human reproduction with the departments of Obstetrics and Gynecology and Anatomy. Professor Charles Hazzard, with Drs. M. M. Melicow and R. F. Seidel, finished a study upon Wilms' tumors and gave a report and exhibit at the annual meeting of the New York State Medical Society.

Dr. M. M. Melicow continued his teaching to undergraduates and residents in his weekly pathological seminars. He, in conjunction with Professor George F. Cahill, presented an exhibit upon the role of the adrenal cortex in somatosexual aberrations in infants and children, at both the annual meeting of the American Urological Association and the annual meeting of the American Medical Association.

Dr. John K. Lattimer has organized the weekly meetings for resident training, and is conducting a research study for the Veterans Administration in the effect of streptomycin upon genitourinary tuberculosis. An exhibit based on this material was shown at the American Medical Association and the annual meeting of the American Urological Association where it was awarded first prize for clinical research. He has published a number of papers during the year on tuberculosis of the urinary tract.

Dr. Harry Seneca has carried on his work in the infections of the urological tract. In trying to determine the most satisfactory nonabsorbable sulfonamide for use in uretero-intestinal transplantation, he verified that one was very effective against B cholera. Dr. Seneca had the opportunity to make this study during the cholera epidemic last winter in Egypt where he personally helped to reduce the spread of this disease. A number of publications on his investigations there are in press. Among the subjects of these reports are: the androgens and renal function; the effect of testosterone propionate in uremia due to cholera; sulfadiazine and sulfacetamide mixtures in the treatment of urinary-tract infections; the treatment of ulcerative colitis; and other studies in relation to culture work on the trypanosomes and hemoflagellates. He is also reporting his studies on extra renal azotemia; phthalyl sulfacetamide in cholera; the recent advances in the laboratory diagnosis of cholera; and the value of various sulfonamides in the treatment of cholera carriers. Dr. Seneca has had two exhibits, one at the New Jersey State Medical Association and one at the International Congress of Tropical Medicine and Malaria at Washington.

At present there is in progress the study of the effect of a series of chemicals

upon fungi, amebiasis, and tubercle bacilli. Various pectinates are also being studied in regard to their antibacterial action. Clinical investigation of P 38 with urea splitting organisms is in progress, as well as studies on the effects of various nonantigenic colloids in prolonging the blood levels of penicillin and the control by sulfonimides of the intestinal flora of patients with uretero-intestinal transplants. Studies were also made of hyaluronidase and hyaluronic acid systems in wound healing, and of the action of androgens on the nephron.

Members of the Department have been active in various scientific and medical societies, and have participated in many governmental activities—chiefly that of the Veterans Administration.

## MEDICAL LIBRARY<sup>1</sup>

ESTELLE BRODMAN, Acting Medical Librarian

The Columbia University Medical Library is the second largest medical school library in the country and one of the largest scholastic libraries devoted to a specialty. As such it must serve first the University and beyond that the world of scholarship and science as a whole. To serve this purpose, the Library makes its contents more available by encouraging interlibrary loans and by furnishing photostats and microfilms of the material in demand. These methods have been made known to others through publication and teaching. Our interlibrary loan circulation has been equal to the yearly circulation of some small libraries.

The list of publications by the library staff, the honors conferred upon them by professional organizations, and the continuous striving for perfection prove the sincere interest of the staff in their work. It is to be hoped that the University will find it possible to retain these staff members as the core for the new postwar medical library. Adequate salaries for all personnel are of primary importance. In spite of being severely handicapped by a large personnel turnover and by the need for space, the staff has made great strides this year, and we hope to reach the prewar record of efficiency and service in the very near future.

The pressing need of the Medical Library at present is for adequate space. The Library extension was built to house 100,000 volumes; it now holds about 145,000. Attempts have been made to enlarge the capacity by removing the stack carrels and substituting extra shelving; by placing shelving in the main reading room and in the periodical reading room; and by placing all duplicates and extra copies elsewhere. We have now reached the point where fur-

<sup>1</sup> For a complete report, see the *Report of the Director of Libraries*, of the Columbia University.



ther space is almost unavailable. The cost of erecting further shelving in the few odd corners still available would be far greater than warranted by the usefulness of such construction. A new building or the opening of a new floor for the Library is urgent.

Theoretically, actively growing libraries double their size every fifteen or twenty years. Our volume of material has increased even more rapidly than this but space capacity has not kept apace. Theoretically, also, book shelves should not be more than half full for a new library and when they are three-quarters full, provision should be made for expansion. Most of our shelves are now completely full.

Through the generosity of the friends of the Dental Rare Book Room, M. Mouton's *Essay d'odontotechnie, ou Dissertation sur les Dents Artificielles*, Paris, Boudet, 1746, was added to the historical collections. This is the first book on mechanical dentistry and appeared the same year as the second edition of Fauchard's work. Mouton was particularly famous for his invention of a spring to fix artificial teeth and the use of gold crowns to prevent further decay of teeth.

In addition to this gift Dr. Isadore Hirschfeld, through Dr. Daniel E. Ziskin, presented a check for \$100 for the Rare Book Room. The Medical Library has not yet expended this amount.

Dr. William Darrach presented MacBride's *Methodical Introduction to the Theory and Practice of Physics*, London, Strahan, 1772, to the Library.

## SCHOOL OF TROPICAL MEDICINE

Professor P. MORALES OTERO, Director

See the *Report of the Director of the School of Tropical Medicine*, published separately each year.

Respectfully submitted,

WILLARD C. RAPPEYE, M.D.

June 30, 1948

Dean



# COLUMBIA UNIVERSITY BULLETIN OF INFORMATION

Forty-ninth Series, No. 40

October 15, 1949

## Report of the Dean of the Faculty of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1949



COLUMBIA-PRESBYTERIAN MEDICAL CENTER  
168TH STREET AND BROADWAY  
NEW YORK 32, NEW YORK

# Columbia University Bulletin of Information

Forty-ninth Series, No. 40

October 15, 1949

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The series includes the Report of the President to the Trustees, and the Announcements of the several Colleges and Schools, relating to the work of the next year. These are made as accurate as possible, but the right is reserved to make changes in detail as circumstances require. The current number of any of these Announcements will be sent upon application to the Office of University Admissions.

C. U. P. 2,950—1949

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# FACULTY OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1949

*To the President of the University*

SIR:

I have the honor to submit the annual report of the activities under the Faculty of Medicine for the academic year 1948-1949.

The registration of the School of Medicine was as follows:

First year . . . . .	114
Second year . . . . .	106
Third year . . . . .	105
Fourth year . . . . .	111
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Total . . . . .	436

The graduating class of June 1, 1949, obtained internships in fifty-nine hospitals in all sections of the country.

There were nearly 2,800 applicants considered for the first-year class scheduled for admission in September, 1949. The applicants obtained their college preparation in 339 colleges. The 120 students accepted received their preparation in forty-seven colleges and came from twenty-seven states. About one third are residents of New York City. Sixty-five of the 108 male students accepted are veterans. The average age of the civilian students accepted is about twenty years, whereas that of the veterans is about twenty-five years. The wide distribution of applicants for admission and the acceptances is illustrated in the following figures:

<i>Area</i>	<i>Applications</i>	<i>Acceptances</i>
New York City . . . . .	849	41
New York State (exclusive of New York City) . . . . .	327	11
Other states or territories . . . . .	1470	65
Foreign (outside continental United States) . . . . .	107	3
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Total . . . . .	2753	120

Not a single student in any of the four years of the medical course failed in academic work during the past year. This is the first time in the

history of the School that such a record was established, and is a tribute to the high quality of the students accepted, their diligence and sustained efforts, and the intensive program of instruction. It also reflects the perseverance and hard work of the Committee on Admissions, of which Associate Dean Aura E. Severinghaus is Chairman.

In the School of Public Health the registration was as follows:

D.P.H. candidates . . . . .	2
M.P.H. candidates . . . . .	28
M.S. candidates . . . . .	78
	<hr/>
Total . . . . .	108

The registration in the School of Nursing was as follows:

First year . . . . .	109
Second year . . . . .	100
Third year . . . . .	92
	<hr/>
Total . . . . .	301

In the Course for Occupational Therapists seventy-three students were registered; fifty students were registered in the Course for Physical Therapists.

The Dental School registration was as follows:

First year . . . . .	30
Second year . . . . .	29
Third year . . . . .	29
Fourth year . . . . .	15
	<hr/>
Total . . . . .	103

There were sixty-nine students registered for noncredit postgraduate courses in the Dental School and thirty-one students registered for postgraduate credit courses during the year.

The following degrees were awarded during the year:

M.D. . . . .	108
Med.Sc.D. . . . .	8
D.D.S. . . . .	13
M.S. (Public Health fields, Nursing) . . . . .	42
B.S. (Nursing, Occupational Therapy, Physical Therapy) . . . . .	70

In addition to the students enrolled under the Faculty of Medicine, there were fifty-eight students registered under the Graduate Faculties of the University who had their instruction and advanced research work in the departments of the Medical School.

Eighty-five visiting scholars, from thirty-three foreign countries came to the School during the year for periods up to a full year of study.

It is gratifying to report that during the academic year ninety-two students received scholarships averaging about \$379 per student. The Borden Undergraduate Research Award was given to Dr. John W. Severinghaus, Class of June, 1949, for outstanding research work during his medical course. Dr. Paul Marks, Class of June, 1949, was given the Janeway Prize, awarded to the graduate who, in the opinion of the Faculty, ranked highest in efficiency and ability. The Harold Lee Meierhof Memorial Prize in Pathology was awarded to Mr. John P. Jahn, Class of June, 1950. The Dr. William Perry Watson Prize in Pediatrics was awarded to Dr. Alexander J. Povalski, Class of June, 1949. The Edwin G. Zabriskie Prize in Neurology was given to Dr. Lillian Strange, Class of June, 1949. Dr. Marc L. Berg, Class of June 1949, received the Prize for Excellence in Pedodontics awarded by the Class of 1929.

The Van Woert Scholarship Award was given to Dr. Julius Richmond, Class of June, 1949. Mr. Carl Feind, Class of June, 1950, was awarded the Coakley Memorial Prize in Otolaryngology. Dr. Robert F. Gehres, Class of June, 1941, was given the Joseph Mather Smith Prize awarded to the graduate whose essay or original research in medical subjects is deemed by the committee on award to be the most meritorious. The Prize for Excellence in Operative Dentistry was awarded to Dr. Bernard Yanowitz, Class of June, 1949, who also received the Sigma Epsilon Delta Prize. Dr. Alfred Popper, Class of June, 1949, was awarded the Rowe-Wiberg Medal. The F. J. Swanson Medal for excellence in theory and practice in dental hygiene was given to Miss Edith I. Maquire. The Albert Stevenson Memorial Medal also for excellence in theory and practice in dental hygiene was awarded to Miss Beverly J. Bittiner.

It is with the greatest sorrow that we report the following deaths among the professorial group during the year:

Leon H. Cornwall, Associate Professor of Clinical Neurology and Attending Neurologist, Presbyterian Hospital, on March 4, 1949

- Walton Martin, Professor Emeritus of Clinical Surgery and Consultant, Presbyterian Hospital, on June 18, 1949
- James Alexander Miller, formerly Professor of Clinical Medicine, Consulting Physician, First Division, Bellevue Hospital and University Trustee at the time of his death, on July 20, 1948
- Irving H. Pardee, Clinical Professor of Neurology and Attending Neurologist, Presbyterian Hospital, on April 10, 1949
- Randolph West, Professor of Medicine and Attending Physician, Presbyterian Hospital, on May 20, 1949
- Daniel E. Ziskin, Professor of Dentistry and Attending Dental Surgeon, Presbyterian Hospital, on October 21, 1948

The following retirements became effective on June 30, 1949:

- A. Raymond Dochez, John E. Borne Professor of Medical and Surgical Research and Attending Bacteriologist, Presbyterian Hospital
- Fordyce B. St. John, Professor of Clinical Surgery and Attending Surgeon, Presbyterian Hospital
- Edmund P. Janvrin, Associate Clinical Professor of Medicine and Visiting Physician, Bellevue Hospital
- Arthur E. Neergaard, Associate Clinical Professor of Medicine and Associate Attending Physician, Presbyterian Hospital
- Edgar Stillman, Assistant Clinical Professor of Medicine and Assistant Attending Physician, Presbyterian Hospital

The following designations were made during the year:

- Harold W. Brown, Acting Executive Officer of the Department of Public Health, 1948-1949
- A. Raymond Dochez, John E. Borne Professor Emeritus of Medical and Surgical Research, from July 1, 1949
- Marie Louise Franciscus, Acting Director of Training for Occupational Therapists, 1948-1949
- Maurice J. Hickey, Acting Executive Officer of the Department of Dental and Oral Surgery, 1948-1949
- Fordyce B. St. John, Professor Emeritus of Clinical Surgery, from July 1, 1949

Among the promotions made during the year were those of:

- Dan H. Moore, Associate Professor of Anatomy
- J. Lawrence Pool, Professor of Neurological Surgery and Executive Officer of the Department of Neurological Surgery
- Harry M. Rose, Associate Professor of Bacteriology, assigned to Medicine



Elizabeth Wilcox, Assistant Professor of Nursing (Mary Imogene Bassett Hospital)

Effective July 1, 1949 the following promotions were made:

Virginia Apgar, Professor of Anesthesia  
Stanley E. Bradley, Associate Professor of Medicine  
Edward R. L. Corwin, Associate Professor of Public Health Practice  
Harry Grundfest, Associate Professor of Neurology  
Alexander B. Gutman, Professor of Medicine  
Irville H. MacKinnon, Associate Professor of Psychiatry  
William B. Parsons, Professor of Clinical Surgery  
George A. Perera, Associate Professor of Medicine  
Robert Rugh, Associate Professor of Radiology (Biology)  
David Shemin, Associate Professor of Biochemistry  
William Benham Snow, Associate Professor of Physical Medicine  
Frank E. Stinchfield, Associate Professor of Clinical Orthopedic Surgery  
James L. Troupin, Associate Professor of Public Health Practice  
Kenneth B. Turner, Associate Professor of Clinical Medicine  
Heinrich Waelsch, Associate Professor of Biochemistry, assigned to Psychiatry

New appointments made during the year were those of:

B. Earl Clarke, Associate Professor of Pathology (St. Luke's Hospital)  
Llewellyn E. Kling, Associate Professor of Public Health Education  
Marthe Vogt, Visiting Associate Professor of Pharmacology

Effective July 1, 1949 the following appointments were made:

Barnet M. Levy, Professor of Dentistry  
Theodore J. C. von Storch, Professor of Clinical Neurology (Montefiore Hospital)

Effective September 1, 1949 the following appointment was made:

Emanuel M. Papper, Professor of Anesthesia

#### STUDENT HEALTH SERVICE

During the past year the Student Health Service handled a larger volume of business than at any time previously, with the one exception of the war year, 1943-1944. This increase in activity coincided with the introduction of the prepayment medical plan which has now successfully completed its first year. In addition to the medical care provided for the students, the facilities of this office, commencing in September, 1948,

were used to extend limited medical care to the secretarial and technical employees of the University working at the Medical Center.

Complete physical and routine laboratory examinations were performed on all first-year and third-year medical students; first- and third-year dental students; students in dental hygiene, occupational and physical therapy; and, on a voluntary basis, the students in the School of Public Health. Routine, complete dental examinations, including x-rays, were performed on the first-year medical students.

Daily consultation hours were held throughout the academic year for medical care, for immunization procedures and various tests, and for the distribution of students for specialty care either in the Vanderbilt Clinic or by individual members of the professional staff. Many students each year use this office not only for medical advice but for the discussion of a great variety of curricular and extracurricular problems. Twenty-six students were admitted to the admitting ward and forty-one were admitted to the Presbyterian Hospital.

During the past year the tuberculosis control program was considerably expanded, both by additional routine chest x-rays and by the introduction of BCG vaccinations. With the addition of routine films on the second-year medical class, chest x-rays became annual standard procedure for all medical students. As in the past, x-rays were also taken on all first- and fourth-year dental students and on students in dental hygiene, occupational therapy, and physical therapy.

#### EMPLOYEE MEDICAL SERVICE

The Employee Medical Service instituted last year has been working very satisfactorily. It has provided an additional service to the University employees at Medical Center in need of medical attention. It has been effective and greatly appreciated.

#### THE GRADUATE AND POSTGRADUATE PROGRAM

The graduate and postgraduate program in the basic medical sciences has continued to provide an increasingly important aspect of preparation for physicians in the various specialized fields of practice. The heavy enrollment of returning servicemen following the close of the war was met successfully, and the program has now returned to a more normal pat-

tern. The plans for accommodating the returning servicemen were made possible by the generous assistance, in the past four years, of the W. K. Kellogg Foundation.

The stimulation of interest in the training of residents in all the hospitals affiliated with the University has lead to the development in a number of these hospitals of greatly strengthened programs of scientific and laboratory opportunities. A larger part of the fundamental training of residents can now be carried out by the hospitals that have added full-time staffs in the sciences. This is a very important step forward in the whole hospital-educational program.

During the past year a study has been conducted by Assistant Dean John B. Truslow, with the assistance of graduates of the Medical School for the Classes of 1910 through 1940, to ascertain their needs and reactions to current professional problems. More than 25 percent of the 2,400 living graduates of these three decades hold academic appointments in medical schools in the United States. Thirty-eight percent live outside the metropolitan area, indicating the widening geographic distribution of the alumni. An active program of postgraduate education is being worked out with these various classes, and has stimulated a great deal of interest and enthusiasm.

#### DEVELOPMENT PROGRAM

In the Dean's Report of last year the development program was discussed at some length. All of those plans are going forward on schedule. It is expected that the Francis Delafield Hospital will be ready for occupancy about January 1, 1950. Plans for the staffing of that institution are well advanced.

The prospect of additional laboratories for cancer research has been realized by a grant of \$1,000,000 from the United States Public Health Service. This has been matched by the University. The plans for these new laboratories are completed, contracts have been let for the steel, and it is expected that construction will begin early in the fall. These laboratories will prove of the greatest possible help to the entire Medical Center and afford much needed opportunities for the expansion of the program in cancer research and related fields.

During the year the program in physical medicine and rehabilitation

has been actively carried on at the Medical Center as well as at the Institute for the Crippled and Disabled. Dr. Robert C. Darling was appointed Coördinator of Physical Medicine and Rehabilitation and has been coordinating the activities under the grant from the Baruch Committee on Physical Medicine.

The affiliation with the Institute for the Crippled and Disabled has been making remarkable progress. This arrangement has resulted in a more satisfactory plan of training for occupational and physical therapists, as well as affording additional opportunities for the study and improved treatment of many handicapped persons. The affiliation holds high promise for expansion into an important community service.

Through the generous support of the American Cancer Society, the clinical research in malignant diseases has been greatly expanded. Under this program patients are admitted to the various units of the Presbyterian Hospital for special studies, beneficial to them and to the advancement of knowledge of cancer.

The undergraduate teaching programs at St. Luke's, Roosevelt, Mary Imogene Bassett, Mount Sinai, New York Orthopaedic, Goldwater Memorial, Montefiore, Willard Parker and Bellevue hospitals continue to be an essential part of the University's effort. The affiliation with Bellevue Hospital is now in its one hundredth year. The teaching program at the Mary Imogene Bassett Hospital at Cooperstown, New York, affords a splendid opportunity for students to become acquainted firsthand with the highest type of rural and community practice. It has the added value of encouraging students to go into practice in some small community.

#### SICKNESS INSURANCE

During the year the question of providing adequate financial support for medical services for the population has come into even more active public discussion through the introduction of numerous bills in Congress. This has been accompanied by intensive organization of opposition to national compulsory sickness insurance through the efforts of the American Medical Association, the state medical societies, and other organizations, in an effort to preserve the present methods of voluntary practice. To a considerable extent the discussion of these problems has served to en-

trench more deeply the divergent philosophies regarding medical care. Partly as a result of these public discussions plans are actually being formulated to promote by evolution rather than revolution sound plans of medical care based on the American idea of free enterprise and public service by voluntary organization. The number of voluntary prepayment hospital insurance plans and the partial medical services sponsored by the medical profession now have indicated the extent to which communities and individuals are endeavoring to finance health programs which will insure a high quality of medical care and at the same time preserve the incentives and emoluments for individual efforts on the part of the physicians, the hospitals, and other professional groups. Out of all these activities is coming a broader concept of the responsibility of American medicine and the public to develop sound plans for comprehensive, voluntary, prepayment, complete family, and preventive medical services for all.

Associated with the question of medical care is the continued pressure to increase the number of medical students and the output of physicians. Between July 1, 1937 and June 30, 1942, the number of medical graduates from schools in the United States totaled 25,818. During the same five-year period, 18,898 doctors died, leaving a net increase in the profession of 6,920. During a subsequent five-year period between July 1, 1942 and June 30, 1947, a total of 32,877 doctors were graduated and 16,435 died, leaving a net increase in the profession during that period of 16,442. The medical course was accelerated during part of this period. In 1947 the number of physicians added to the profession was 6,855 and the number who died was 3,575, a net increase in the medical profession of 3,280 in that year alone. In 1948 the additions to the professions were 6,597 and the deaths were 3,230, leaving a net increase of 3,367 for the year.

In regard to the future supply of physicians the studies made by Selective Service indicate that on the basis of present enrollments there will be 209,300 doctors in 1950, a ratio of one physician to every 695 persons; a ratio twice as high as any other country in the world before World War II. Studies made a few years ago by the Commission on Medical Education predicted that on the basis of 5,600 new doctors per year there would be about one physician to 690 persons in 1980. The total number of additions to the profession annually is now considerably higher than

5,600. The ratio of doctors to the population during the next thirty years will continue to rise since the number of physicians from existing medical schools is increasing at a rate greater than that of the general population and makes no allowance for the possible output of new medical schools.

The need is for better, rather than more, doctors and for keeping practicing physicians abreast of new knowledge and methods. The distribution of physicians is faulty but that difficulty will not be solved merely by producing more physicians. Neither will an increase in the output of the medical schools solve the matter of distribution within the profession itself to overcome shortages in the Armed Forces and in a number of specialized fields of medicine.

Incentive enrollment, as actively urged upon Congress and state legislatures, will only have the effect of lowering the standards of medical education because all of the medical schools today are operating at capacity—some far in excess of their own resources—in order to produce physicians with adequate preparation. What is needed more than anything else is financial resources to maintain and improve the standards of professional training now being provided by existing medical schools and to relieve the financial drain on their respective universities. Medicine is an essential element in modern society and should be maintained on a qualitative basis. Proposals designed merely to meet temporary inequities in the distribution of medical care through the lowering of the standards of professional education will, in the long run, be against the public and national interest.

#### CHANGES IN MEDICAL EDUCATION

Medical education is undergoing constant revision in response to the advances in science. The enormous increase in knowledge and the rapidity of new discoveries in the last few years make it evident that medical training must be focused not upon data and facts, which are outdated in a few years, but more particularly upon the broader concept of the role of the physician in family and community life. It probably is true that more progress has been made in medical knowledge in the last thirty years than in the previous three thousand. The physician of the future must be fully equipped in methods and habits of study, as well as initiative and industry, to keep abreast of the newest methods of diagnosis and

treatment. The fact that he must always remain a student focuses attention upon continuation and postgraduate education throughout the professional life of the physician.

It is this same consideration which requires a more economical and efficient method of integrating the programs of teaching and investigation between the medical sciences and the clinical departments. The present tendency in many of the larger medical schools of creating a series of more or less independent institutes in individual departments rather than close integration of the medical sciences and clinical departments can only lead to inefficiency and unnecessary costs. Medical training requires integration and synthesis rather than departmental isolation and overspecialization.

The introduction of environmental controls—such as water supply and sewage disposal, the pasteurization of milk, the control of communicable diseases, and similar efforts—have made possible mass control of most of the crippling and killing disorders which beset the population even fifty years ago. Today the problems are largely those of middle-age and late life, representing thousands of individuals who have been protected from the diseases which in past generations have taken a heavy toll of younger members of the population. It is this group of patients who require not only strictly technical skills but a sympathetic understanding of the psychological, emotional, nutritional, and other problems of personal and individual health. These needs in medical care are reflected in the efforts of most medical schools to place greater emphasis upon the patient as a whole, including the environmental, economical, social, and psychological factors in his daily life. This explains in part the shifting away from overspecialization in undergraduate medical training and the increasing attention being paid to group practice, follow-up clinics, more active supervision of hospital clerkships, the improvement of intern training, and the growing emphasis of undergraduate medical education upon the human and personal problems of the individual.

Medical education is not merely concerned with the training of technicians, however skilled, but increasingly with the preparation of the doctor to assume broad responsibility for the welfare, happiness, and social effectiveness of his patients. This new concept is represented

through the growing disregard of strictly departmental lines of instruction and administration within the medical school. Today the integration of medical teaching to a large extent has eliminated the classification of instruction into water-tight compartments. It is difficult under this new system to distinguish between the activities of the several departments, which is as it should be. The Faculty Committee on Instruction is alert to the necessity of keeping the teaching abreast of changing concepts of medicine and has kept the program of teaching realistically related to the changes in the sciences and in their clinical applications.

The financial implications of medical education are widely appreciated. It is the most expensive of all forms of teaching because, in the better institutions, individualized laboratory and clinical supervision is provided. Those most familiar with the problem are convinced that the intensive individualized instruction of those who upon graduation will have the important decisions of life and death pays large dividends in public service and professional competence. There can never be any substitute for the knowledge and the priceless judgment of the conscientious physician who is prepared to assume full responsibility for the individual and family health problems.

The privately endowed universities with medical schools are confronted with a serious drain on their financial resources in order to maintain the highest quality of medical instruction and research in the face of rising costs and the increased community and national responsibilities of medicine. Major proposals for relief include federal and state subsidies of existing schools, a national fund-raising program for medical education, university development plans for more endowments and annual sustaining gifts from alumni and friends, and the utilization of the earning power of the clinical staffs. A combination of several or all of these methods will be necessary in order to retain and improve the high standards of medical education in this country and to permit the universities to continue the direction and development of teaching-research programs which promise to insure high competence in the health services of the nation in the future.



## DEPARTMENT OF ANATOMY

Professor SAMUEL R. DETWILER, Executive Officer

The Department suffered the loss of three full-time staff members: Assistant Professor William B. Atkinson resigned to take a position with the Research and Development Department of the United States Government at Camp Detrick, Maryland; Assistant Professor Louis Levin accepted a position with the Scientific Section of the New York Branch of the Office of Naval Research; and Dr. Dorothy Kraemer accepted a position as Assistant Professor of Anatomy at the Long Island College of Medicine.

Dr. Charles A. Noback, formerly of Long Island College of Medicine, has been appointed Assistant Professor of Anatomy. Drs. Frederick J. Agate, Jr. and Dorothy D. Johnson have been appointed Instructors in Anatomy. Dr. Emanuel Kaplan has been promoted from Instructor to Assistant Professor of Anatomy. Associate Professor Herbert O. Elftman has been placed in charge of the course in gross anatomy.

The residency program in anatomy has continued to flourish. Fifteen courses were offered to the residents from the affiliated hospitals with a total registration of 194. This program has been ably administered by Dr. Jose M. Ferrer.

Professor Philip E. Smith has continued his studies with rhesus monkeys on factors responsible for the maintenance of the pregnant state, with special reference to the placental and adrenocortical hormones. Professor Smith received the degree of Doctor of Science, *honoris causa*, from Princeton University.

Dr. Agate, under the direction of Professor Smith, has completed a study on the growth and secretory activity of the mammary glands of pregnant rhesus monkeys following hypophysectomy. Dr. Johnson, also under the direction of Professor Smith, completed a study on the effects of alloxan administration on the pancreas of the guinea pig.

Professor Earl T. Engle further pursued his long-term studies on endocrine and cytological phases of human testes. With Professor Atkinson he has continued cytochemical investigations of normal and cancerous growth of the endometrium, while with Professor Charles Buxton of the Department of Obstetrics and Gynecology he has extended observations on detecting ovulation time in women. Professor Engle again served on two committees of the Medical Division of the National Research Council and during the year was appointed a consultant to the Atomic Casualties Commission. He attended the Cheltenham Conference in England in August, 1948 as representative of the National Research Council, and early in May, 1949 he left for Japan with the Atomic Casualties Commission to study various late effects of atomic radiation in the population in Hiroshima and Nagasaki.

Professor Dan H. Moore continued his investigations of the factors, especially lipids and lipoproteins, which influence electrophoretic patterns. He has designed a compact portable electrophoresis apparatus. In collaboration with Professor Samuel Graff of the Department of Obstetrics and Gynecology, Professor Cushman D. Haagensen of the Department of Surgery, and Dr. Henry T. Randall of the surgical resident staff, he has assisted in the isolation and visualization of a cancer-causing virus from mouse milk.

Professor Wilfred M. Copenhaver is continuing his morphological studies on the conduction system of the heart. In collaboration with Professor Detwiler studies are being conducted on the effects of thiouracil on amphibian embryos.

Professor Elftman has continued his investigations on the histochemistry of the adrenal gland and of the testis. In coöperation with Dr. Hans Kaunitz of the Department of Pathology he has completed a histochemical study of the pigment produced in rats by vitamin E deficiency. He has also served in an advisory capacity in the research program on the development of artificial limbs.

Professor William M. Rogers and Drs. Leroy M. Miller and Herman Gladstone are investigating the structural and functional changes in the temporomandibular joint and in the skull of patients with motor injuries involving the trigeminal nerve. Together with Dr. Solomon L. Katz of the Department of Dental and Oral Surgery, Professor Rogers is studying malfunction of the temporomandibular joint in clinic patients; and with Dr. Henry Aranow, Jr. of the Department of Medicine he is conducting bioelectric studies on patients with myaesthesia gravis.

Professor Adolph Elwyn carried his usual heavy schedule of giving neuroanatomy lectures to various groups at the Medical Center. He is now preparing a series of lectures for an introductory course in medical history to be given during 1949-1950.

Professor Harry H. Shapiro has served as visiting lecturer in postgraduate anatomy at Tufts College Dental School. He has been appointed a lecturer in postgraduate anatomy at the United States Army Medical School in Washington, D.C., and is continuing his embryological and histological studies on developing teeth following transplantation in the cat.

Professor Edmund Applebaum conducted a study of the mechanism of dental caries in decalcified and in ground sections with the aid of the Grenz ray. Dr. William Raebeck, Jr. on a fellowship, has been studying the incidence of caries formation in parathyroidectomized hamsters. Dr. Alexander Seelig investigated pulp reactions to systemic diseases, and Professor Moses Diamond has continued his studies on dental structure and the growth of the skull in rats and humans. Dr. Charles A. Ely is continuing studies, begun at the University of Wisconsin, on the site of origin and the properties of pituitary anti-gonadotropic substances.

Professor Emanuel Kaplan completed a translation from French into English of Duchenne's *Physiologie des Mouvements*. The translation has been published by J. B. Lippincott Company and will be a valuable aid particularly to orthopedic surgeons. Professor Kaplan is continuing his investigation of the anatomy and mechanics of the human hand in relation to surgical procedures. He is also studying the developments of the hip joint in relation to congenital dislocations.

Professor Detwiler has continued his investigations on the physiology of development in the nervous system and on the comparative structure and physiology of the vertebrate eye.

## DEPARTMENT OF BACTERIOLOGY

Professor A. RAYMOND DOCHEZ, Executive Officer

The clinical and theoretical application of bacteriology to various fields of medicine has developed so rapidly and assumed such great importance in the last few years that it is now difficult to give the student under the old schedule the kind of training that he should receive. Rearrangements and a reorientation of instruction is now necessary.

Nine graduate students were candidates for the degree of Doctor of Philosophy in bacteriology during the year and one student completed all the requirements for this degree.

The Diagnostic Laboratory was again especially active, having made 19,282 bacteriological and 35,291 serological examinations. The cost of operating this division has increased greatly and is a serious drain on the finances of the Department. Procedures of the Wassermann Laboratory have been revised to conform with the methods used by the New York City Department of Health for the serological diagnosis of syphilis. The methods for the isolation and identification of the tubercle bacillus were reviewed and revised, resulting in a marked improvement of the procedure. Methods were introduced in the Antibiotic Laboratory for estimating blood levels of aureomycin and chloromycetin and for determining the *in vitro* sensitivity of bacteria to these new therapeutic agents. Systematic instruction in bacteriologic and serologic techniques was given to medical interns attached to the Diagnostic Laboratory during their juniorship.

Experimental work on poliomyelitis, carried out by Professor Claus W. Jungeblut during the past year, revealed the existence of a unilateral immunological relationship between Columbia-SK and Yale-SK poliomyelitis virus. Further observations suggest that certain strains of poliomyelitis virus represent a complex entity, consisting of neurotropic and viscerotropic variants in multiple proportions.

Under the auspices of the Swiss-American Exchange for Medical Informa-

tion, Professor Jungeblut spent six weeks in Europe where he lectured at various universities and medical societies in France (Paris), Switzerland (Zurich, Berne, St. Gallen, Lugano), Germany (Frankfurt), Belgium (Brussels, Antwerp), and Holland (Leiden, Utrecht).

Professor Beatrice C. Seegal, in collaboration with Drs. Margaret Holden and Samuel Raymond, has completed preliminary studies on the antibiotic activity of five esters of acetylacrylic acid. These esters have a wide range of activity. They inhibit the growth of fungi and the mycobacteria as well as other gram-positive and gram-negative organisms.

Drs. Emily N. Loeb and Abbie I. Knowlton of the Department of Medicine and Dr. Herbert C. Stoerk of the Merck Institute for Medical Research, together with Professor Seegal, have continued studies on the effect of the injection of certain adrenal steroids in the nephritic rat and have extended these studies to adrenalectomized rats. When adrenalectomized animals were rendered nephritic by the administration of specific cytotoxic serum both desoxycorticosterone and compound E induced hypertension. In association with Drs. Loeb and Knowlton, experiments designed to produce a toxemia of pregnancy in animals rendered nephritic with cytotoxic serums are being extended from rats to rabbits and dogs. The relatively long gestation periods of these latter animals will allow for more prolonged observation on the blood pressure levels and progress of renal lesions.

Professor Theodor Rosebury and Dr. Ada R. Clark, under grants from the United States Public Health Service and the John and Mary R. Markle Foundation, have continued their studies of anaerobic bacteria of the mouth. In a large series of cases of various gingival and periodontal diseases compared with normal mouths, examination under the darkfield microscope, anaerobic cultivation, and guinea pig inoculation indicate that the flora under pathological conditions is an overgrowth of indigenous forms. When sufficiently concentrated this flora has well-marked pathogenic capacity. Limited pathogenicity has been found for pure cultures only of certain strains of fusobacterium and bacteroides. Recombination experiments with cultures derived from various oral sources yielded only small and generally nontransmissible lesions.

Professor Harry M. Rose has continued his studies on the antiviral effect of secretions of the human respiratory tract. During the past year at least two substances have been identified in sputum (one heat-labile and the other heat-stable), which exert remarkably different effects upon the ability of influenza A and influenza B virus to agglutinate susceptible erythrocytes and to infect mice and chick embryos. Together with Professor Charles A. Ragan, Jr. of the Department of Medicine, Professor Rose has continued studies of the differential sheep cell agglutination test for the diagnosis of rheumatoid arthritis. Studies on the mechanisms of the phenomenon indicate that it is due to the elaboration of a previously unknown heterophile antibody. Pro-

fessor Rose's work on rickettsialpox has been continued. Seven cases of rickettsialpox have recently been treated with aureomycin and a prompt therapeutic effect has been obtained in all of them. The antibiotic was found to interfere with the immune response when given very early in the course of the disease. In collaboration with Professor Yale Kneeland, Jr. of the Department of Medicine and Dr. Count D. Gibson, Jr. of the Presbyterian Hospital, the therapeutic value of aureomycin in primary atypical pneumonia has been established. Negative results with aureomycin therapy were obtained in patients with infectious mononucleosis and herpetic gingivostomatitis as well as in experimental infections of chick embryos with the viruses of vaccinia and herpes simplex.

The studies of Professor Charles L. Fox, Jr., of the host's reactions to infections were extended. Chemical analyses of tissues and body fluids indicated that pneumococcal and streptococcal infections are associated with intracellular changes. Recovery is accompanied by return to normalcy in the tissues. In collaboration with Dr. Carl T. Nelson of the Department of Dermatology, the chemical changes that accompany fetal anaphylaxis were explored. Alterations in the potassium, sodium, and water content of tissues and body fluids were observed. Professor Fox studied the cellular changes in heart failure, in collaboration with Dr. Charles K. Friedbert at Mount Sinai Hospital. Marked abnormalities especially in potassium are receiving further study there where a metabolism ward and technical assistance have been provided by the Trustees.

Dr. Margaret Holden, in collaboration with Professor Seegal, has continued her studies in tissue culture with two lines of investigation in view. Dr. M. Maxim Steinbach carried out comparative studies of the antibiotic activity of aureomycin, streptomycin, and paraminosalicylic acid *in vitro* and in dba mice against infection with the H<sub>37</sub>RV tubercle bacillus. Dr. Saul Frances has continued his studies of fusobacterium, bacterioides, and leptotrichia.

Dr. Samuel Raymond has published the results of his chemical study of the structure of the acetylacrylates which were previously shown to have antibacterial activity. He has also published a description of an improved microburet. In collaboration with Dr. Jules G. Waltner of the Department of Otolaryngology and Herbert Wohl, Dr. Raymond has found significant chemical differences between perilymphatic and spinal fluids in cat and human, indicating the presence of an anatomical barrier between these two fluids in the body. Together with Dr. Robert F. Gehres of the urological residency staff in the Presbyterian Hospital, a study of ethylenediaminetetraacetic acid as an agent for dissolving urinary calculi has been completed and the results are now being applied clinically. Dr. Gehres has been awarded the 1949 Joseph Mather Smith Prize for his thesis on this subject.

Elliott Middleton, Jr., a third-year medical student on leave who holds a Life Insurance Medical Research Fund Student Fellowship, has been study-

ing streptokinase, the activator of the human fibrin-lysing enzyme system. His studies have included an examination of the *in vitro* effects of this system on tissues and a search for enzyme precursors, in extracts of animal and human tissues, which may be activated by streptokinase. Further studies on tissue activators of the fibrin-lysing enzyme have also been carried out. *In vivo* effects of this enzyme system are being studied in rats.

Alice W. Knox, under Professor Jungeblut's supervision, has completed her study on infection in pregnant mice with the Columbia-SK strain of murine poliomyelitis virus.

Joseph Portnoy, a serologist of the United States Public Health Service assigned to the Department of Dermatology is directing the serologic testing program in syphilis, under Professor A. Benson Cannon. Pilot studies have been undertaken by Mr. Portnoy to demonstrate the possible presence of antigenic substances in the fluids of syphilitic humans and rabbits. Methods employing the usual serologic tests for syphilis proved inadequate.

The increasing importance of biochemistry in the understanding of bacterial and virus infection and in the mode of action of chemotherapeutic and antibiotic agents makes it essential that serious consideration be given to the progressive development of this field of bacteriologic study. Results obtained are of great general biologic significance and will throw much light on the intermediate metabolism of animal cells.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

Instruction in biochemistry has been given to 110 medical students, twenty-eight dental students and forty-four graduate students under the Faculty of Pure Science. Of the last-named group, thirty-two had major interest in biochemistry and three of these completed requirements for the degree of Doctor of Philosophy.

Staff members have been active in research in a wide variety of biochemical fields. Professor Erwin Chargaff has continued his work on the chemistry of nucleic acids, the biological oxidation of inositols, the composition of serum lipoproteins, and the quantitative analysis of lipid constituents in minute amounts. Professor Erwin Brand has widened the scope of his research in the chemistry of proteins and amino acids under a program supported by the United States Navy. Professor Goodwin L. Foster pursued his studies of methods for the isolation of amino acids from small amounts of proteins. Professor Maxwell Karshan has continued, in collaboration with members of the staff of the Department of Dental and Oral Surgery, studies on the etiology of periodontoclasia and of chronic soft tissue lesions in the mouth.

Professors David Rittenberg and David Shemin, in collaboration with Drs.

David B. Sprinson and Irving London of the Department of Medicine, continued biochemical researches with the aid of isotopes. These include studies on the dynamics of the human red cell, congenital porphyria, the rate of formation of serum cholesterol in the normal human, the metabolism of glycine, the absolute rate of protein synthesis in man, the metabolism of acetone in the rat, the chemistry of the biological formation of the blood pigment, the mechanism of transamination, and the intermediary metabolism of tryptophane, arginine, serine, and glycine.

During the year Professor Clarke completed his work as Chairman of the Editorial Board of the monograph on the "Chemistry of Penicillin" which has now appeared in print; concluded a two-year term as President of the American Society of Biological Chemists; and continued to serve as Chairman of the Antibiotics Section of the United States Public Health Service. He has also collaborated with Professor Frank L. Meleney of the Department of Surgery in a chemical study of the antibiotic, bacitracin.

Professor Edgar G. Miller, Jr. acted as responsible investigator for the researches of Dr. Brand and the work of Dr. Victor Ross on protamine toxoid under a grant from the United States Public Health Service. He also rendered important services in the University seminars program.

The Department has afforded working facilities for three visiting scholars: Dr. Clifford A. Bunton of the University of London, Dr. Mogens Faber of Copenhagen, and Professor Hsien Wu of Peking Union Medical College.

## SCHOOL OF DENTAL AND ORAL SURGERY

Professor MAURICE J. HICKEY, Acting Associate Dean and Executive Officer

The death of Professor Daniel Ziskin was keenly felt by all members of the Department. Professor Ziskin's contributions to the fields of diagnosis, research, and graduate training played a major part in the development of dental education at Columbia.

Professor Bion R. East, Executive Officer of the Department of Dental and Oral Surgery on leave of absence, assumed the duties of Assistant Medical Director for Dentistry in the Veterans Administration.

The demand for admission to the School of Dental and Oral Surgery continues to increase each year. Out of 509 applicants from thirty-one states, two territories, and nine foreign countries, thirty students were admitted to the first-year class of 1948. The residential distribution of candidates for certificates included nine states and four foreign countries. Those enrolled in non-credit postgraduate courses came from sixteen states and five foreign countries.

## DENTAL CLINIC

The Dental Clinic of the School functioned during the year under the direction of Professor Irvin L. Hunt. The magnitude of this operation is indicated by the following data.

During the twelve-month period, May 1, 1948 to April 30, 1949, the Dental Clinic admitted a total of 12,098 patients. Of this number, 6,669 were new admissions and 5,429 were readmissions of former patients. The x-ray division made 54,275 x-ray exposures. The total visits to all clinics was 35,180. The distribution of this patient load was as follows: operative dentistry, 3,849; prosthetic dentistry, 3,431; surgery, 13,582; orthodontics, 10,522; pedodontics, 694; periodontia, 1,926; dental hygiene, 1,176.

## DIVISION OF OPERATIVE DENTISTRY

Professor Carl Oman continued to head the Division of Operative Dentistry. Particular emphasis is placed upon the clinical program. Constant improvement in the quality of service to the patients results naturally in a high quality of instruction for the student.

Professor Oman and Dr. Harold Sherman have completed a study of co-medication in operative dentistry. Dr. Sherman presented an abstract of this paper to the New York Chapter of the International Association for Dental Research at the May meeting. This study involved the use of demerol in conjunction with novocain, pontocain, and cobefrin.

A group consisting of Professors Oman and Maxwell Karshan together with Drs. Joseph A. Fiasconaro, Henry I. Nahoum, and Sherman are beginning a study of chemical tests for caries activity, preliminary to a clinical investigation of therapeutic agents for control of dental caries.

Professor Daniel M. Kollen and Dr. William Miller, with the assistance of Dr. John D. Hogan, have done outstanding work in the subdivision of root-canal therapy. There were seventy-three cases of all types successfully treated. Thirty-eight of these cases were completed by postgraduate students and the remainder were done by Senior students.

## DIVISION OF ORAL SURGERY

Professor Samuel Birenbach was appointed Acting Head of the Division when Professor Maurice J. Hickey became Acting Associate Dean of the Dental School. Dr. Douglas B. Parker was made Clinical Professor of Oral Surgery and Drs. William J. Savoy and Alvin S. Nathan were promoted to Assistant Clinical Professors of Dentistry.

An investigation is in progress on the effect of penicillin on transient bacteremias following the extraction of teeth. Dr. Joseph Schroff developed a new technique for the surgical removal of osteomas (enostosis) of the jaws.



Professor Birenbach instituted a series of lectures and seminars for the medical students on maxillofacial trauma. This is being taught as part of the course in traumatic surgery.

A new clinic was organized for the study and treatment of temporomandibular joint disfunction and disease. The Departments of Anatomy and Otolaryngology are collaborating in this clinic function together with related divisions in the Dental School.

The postgraduate course in oral surgery was extended to encompass two calendar years. New students for the next course have been accepted on this basis. The Dental Alumni Association of Columbia University presented and dedicated a fully equipped operating room in general anesthesia for the ambulatory dental patient. This is called the Jules Epstein Memorial Operating Room. Professor Birenbach donated several complete sets of oral surgery instruments to the clinic.

A motion picture on surgery for the preparation of the mouth for immediate dentures was made and is being used for undergraduate and graduate instruction. Three papers and two case reports were published by members of the staff.

#### DIVISION OF ORTHODONTICS

The Division of Orthodontics continues under the direction of Professor Arthur C. Totten. The curriculum has been revised and strengthened. Equipment for cephalometric x-ray studies has been obtained and is greatly aiding teaching and research.

The Division is acutely aware of the need for a crippled children's clinic to care adequately for the cleft palate, hare lip, and cerebral palsy child.

The teaching of prevention and correction of simple types of malocclusion and adult orthodontics for restorative procedures to the undergraduate students has been most favorably received. This type of service by the general dental practitioner is an important adjunct to his care of patients.

One short postgraduate course in the fundamentals of orthodontics and technical instruction in the twin-wire mechanism was given by Dr. Joseph E. Johnson of Louisville, Kentucky, and assisted by Drs. John Dolce, George B. Crozat, Joseph D. Eby, Clare K. Madden, and Franklin A. Squires. Twenty-four students attended.

The Department of Anatomy and the Division of Orthodontics are continuing their research in problems of the temporomandibular joint.

The Division is coöperating with Teachers College in an investigation of the effects of malocclusion in speech, and with the caries research project in the study of orthodontic treatment of dental caries.

The staff held a one-day seminar and five evenings of "information nights" for the members of the Columbia University Orthodontic Alumni Society.

These meetings are exceptionally well attended and members come from various parts of the United States and Canada.

#### DIVISION OF PEDODONTICS

Fifty-seven children were admitted to the Pedodontic Clinic and the number of visits totaled 587. Little difficulty was experienced with any patient during the year. This is particularly pleasing since child management is of primary importance in preparing the child properly for the reception of operative procedures.

Again the volunteer members of the staff have expressed a desire to continue their work next year. They are Drs. William A. Verlin, Julian Schroff, and Edward S. Luboja.

Professors Ewing C. McBeath and Solomon N. Rosenstein, together with Dr. Luboja, have been engaged in a number of research activities. Of particular interest is their study of growth and development of children and dental caries, using Wetzel grids to plot general growth and development, together with detailed clinical and x-ray appraisal of dental caries incidence. Medicodental relationship of pediatrics and pedodontics are being explored in collaboration with the staff of the Department of Pediatrics.

Other programs include: x-ray studies to determine normal range of variation in tooth development and eruption in different age groups of children; the development of a comprehensive and practicable program for education of parents and children in prevention of dental disease; relation of frequency of carious involvement of proximal and occlusal surfaces of deciduous teeth; and a study of congenitally missing permanent and deciduous teeth in children to determine relative frequency of absence of different teeth in both dentitions.

#### DIVISION OF PROSTHETICS

Teaching activities under the direction of Professor Gilbert P. Smith have been confined to regular undergraduate and postgraduate courses and have consumed most of the time of the staff.

The Sophomore crown and bridge course was conducted by Drs. Robert E. Herlands, Howard A. Arden, and John J. Lucca. The Sophomore full and partial denture course was conducted by Professor Max Pleasure and Drs. Oscar Beder and Arden. As in the crown and bridge course, concentration of material and coördination with clinical work was stressed.

Professor Pleasure and Drs. Beder and Ignazio F. Boscarelli presented the Junior Prosthetic Clinic and the results were of the usual high quality with a slight increase in quantity per student over previous years. The Junior Crown and Bridge Clinic was conducted by Drs. Herlands, William J. Miller,

and Lucca. The number of units per student done by this class was about double that done by last year's Junior class. This is partially due to a better student body and to improvements in the basic technique course in their Sophomore year.

The small class in the Senior Clinic, under Drs. George Hindels, Herlands, Miller, and Boscarelli, permitted more individual teaching which was reflected in the results obtained.

In the field of research the Prosthodontia Division has had a number of projects under way. Dr. Lucca has continued his work supported by the Isidore Stern Memorial Gift for Comparative Study of Partial Dentures. Dr. Lucca has also taken an active part in the temporomandibular clinic established by Professor Birenbach.

Dr. Beder has conducted an active clinic in surgical prosthesis and has continued his investigations of the use of new materials and new uses of old materials in this field, especially in radium therapy for cancer, obturators, and cranial prosthesis.

Dr. Herbert D. Ayers, Jr. has continued his studies on amalgam expansion and contamination. Professor Pleasure is conducting an investigation of varied occlusal forms and arrangements as they function in full dentures.

#### DIVISION OF POSTGRADUATE STUDIES

The Division of Postgraduate Studies has continued under the active direction of Professor Moses Diamond.

A number of advantageous changes were made in the curricula in the interest of improving the standard. With few exceptions, all short refresher courses have been eliminated. Those which are still retained are in orthodontia, periodontology, and special courses in maxillofacial prosthesis and one in root canal therapy.

All other postgraduate training is now on a certificate-of-training basis. These include orthodontia, oral surgery, periodontology, pedodontics, and general restorative dentistry. Oral surgery has been increased from one to two calendar years and only periodontology and pedodontics remain on a one-year basis. There has been excellent coöperation from the basic science and medical staffs. Dental graduates were included in the course for medical residents in general pathology. The Department of Anatomy has arranged a course in general microscopic anatomy which is to be integrated with the pathology course.

Applications for training of young teachers for other institutions are beginning to be received. In some cases they can be financed by their own institutions and in other cases financed by foundations such as the W. K. Kellogg Foundation. The aim is to maintain a program of high standard that would encourage such applicants.

## DIVISION OF CLINICAL RESEARCH

The development of the clinical research laboratories as a center of investigation by both staff and students was seriously handicapped by the death of the head of the laboratory, Professor Daniel E. Ziskin, on October 21, 1948. The clinical research laboratories continued their activities under Dr. David A. Dragiff as acting head of the Division of Clinical Research.

The investigation of the etiology of periodontosis was continued under the direction of Professor Maxwell Karshan with the collaboration of Drs. Benjamin Tenenbaum and Henry I. Nahoun.

Drs. Irwin D. Mandel and Simon Lifton continued their study of caries activity tests, specifically with the valuation of lacto-bacilli counting. Tests have been run on the effect of variations in collecting methods and handling of the sample and the correlation of the counts with clinical caries activity.

The studies of various chronic lesions of the oral mucous membranes has continued, clinical studies being done by Drs. Herbert F. Silvers, George Stein, and Austin Kutscher; the animal studies being performed by Drs. Stein and Dragiff. These studies were performed under the direction of Professor Karshan and Dr. Dragiff.

## DIVISION OF STOMATOLOGY

During the year the Division of Stomatology was created with Professor Lewis Stone as its head. The newly organized Division comprises the sections of diagnosis, radiology, and periodontology. Professor Edward V. Zegarelli was appointed head of the Diagnosis and Radiology Sections and Professor Frank E. Beube as head of the Section of Periodontology.

There have been several changes in the membership of the diagnosis staff this year. Professor Solomon N. Rosenstein, who has been serving on a half-time basis for over fifteen years, is now a full-time member of the Division of Pedodontics. Drs. George Minervini, Wesley Halpert, and John Piro have been added on a voluntary basis with the rank of clinical assistants. Dr. Solon Ellison, a Fellow in bacteriology, has been on the diagnosis staff during the current year. Dr. Jack Budowsky, who was promoted to the rank of instructor, has continued to serve as has Dr. Joseph A. Cuttita, Assistant Professor of Dentistry.

Lectures in radiology to the Sophomore students have been assigned to Dr. Budowsky and he will spend some time receiving supplementary instruction in x-ray technique at the Eastman Kodak Company in Rochester, New York. Professor Cuttita gave a course in dental therapeutics to the Sophomore students. He was appointed a member of the Committee on Admissions of the Dental School and Chairman of the Intern Placement Committee.

The diagnosis staff, with the aid of Professor Samuel Birenbach from oral surgery, gave two one-week, full-time courses in diagnosis to dentists from the

Veterans Administration. One course was given in December, 1948, and the other in April, 1949, to groups of fifteen men each.

Members of the diagnosis staff are participating as a group in various research projects, including studies of acute herpetic gingivostomatitis, cementomas or peripical fibro-osteomas, idiopathic cysts, and recurrent aphthae.

The section of periodontology has considerably accelerated its undergraduate teaching program during the past academic year. Some subjects which were taught in the Senior year are now part of the Sophomore and Junior schedules. This provides additional time for more advanced training in periodontology to the Senior students.

Four postgraduate students received certificates in training in periodontology. Another fifty-three students completed various short-term postgraduate periodontia courses.

The periodontia staff has given numerous lectures and courses to various dental societies in and outside of New York. Professor Beube has published a paper on the factors which influence cementum and bone repair and Professor Saul Schluger has published one on periodontal treatment techniques.

An animal experimental investigation and clinical study on capillary fragility has been started. An extensive research program has been planned for the coming year.

#### DIVISION OF DENTAL HYGIENE

The courses for dental hygienists registered twenty-two Senior students for the Class of 1949 and nine Junior students for the Class of 1950. The students were enrolled from eight states, Puerto Rico, and Canada. All candidates in the Junior class have had two years (60 credits) of college education. The Class of 1950 is the first class to qualify as an all-degree class. Seven candidates of the Senior class will receive the Bachelor of Science degree in dental hygiene.

Two clinics were in operation during the year to provide clinical practice in dental prophylaxis for students and 2,240 patient visits were recorded. The clinic in the Dental School was in session 132 half-days from September to May and the Dental Hygiene Clinic at 15 Amsterdam Avenue met for a similar period of time.

During the Spring Session of 1949, Senior students were assigned to schools in which dental health programs were in progress under the direction of dental hygiene teachers. Each supervising teacher was assigned two students who worked under her direction one day each week during the semester. In return for these services, dental hygiene teachers were permitted to register for the course, *Principles of Social Case Work*, for two credits without tuition. This teaching procedure was found to be effective and will be continued next year.

During the final examination period Dr. Miriam C. Pritchard gave the Syracuse Test Series in Human Growth and Development. Reports indicate that all students were above the medium for college students. These tests indicated that a desirable type of student from a mental and emotional point of view is being recruited into dental hygiene.

Through the placement service maintained for graduates of courses for dental hygienists, thirty candidates were provided for positions, while 153 positions were offered.

Through arrangements with Sister Marie Catherine, Director of the Boarding Department, and Dr. G. S. Bauer in charge of the dental clinics at the New York Foundling Hospital, consent was given for the Columbia Dental Clinic at 59th Street to conduct a program of topical application of sodium fluoride, using the children from the Foundling Hospital as patients. This program was started on February 7, 1949 and continued through May 4, 1949. Every effort was made to follow the technique recommended and demonstrated by Dr. Frank Cady of the United States Public Health Service.

## DEPARTMENT OF DERMATOLOGY

Professor A BENSON CANNON, Executive Officer

One of the most important developments in the Department during the past year has been the opening of our Syphilis Serology Laboratory for diagnosis, teaching, and research. This laboratory, given by a benefactor of the Department, is under the direction of Dr. John F. Mahoney who established the penicillin treatment of syphilis. Joseph Portnoy is the serologist in charge, with the assistance of Lois Tehie and Basil Nicoolicheff. The laboratory provides all the accepted tests for syphilis for the first time at the Medical Center. Five tests are done on every specimen and fourteen are available when required. This has greatly clarified the many problems in diagnosis and management of the disease. Since the laboratory ran its first test on November 1, 1948, over 18,000 have been performed, many of them for other departments. Students, physicians, and other qualified persons have been instructed in serologic methods and in the significance of the tests, and a research project in syphilis serology is already under way.

Professor A. Benson Cannon was a guest speaker in March before the Southern Clinical Conference in Dallas, Texas. His topics, by request, were "Cutaneous Manifestations of Systemic Disease," "Present Day Treatment of Syphilis," "Treatment of Common Skin Diseases," and "Fungous Infections." He also participated in round-table discussions at luncheon each day and in the clinicopathologic conferences at night.

Professor Emeritus J. Gardner Hopkins toured Germany and Austria early

this year, under the auspices of the European Command of the United States Army, visiting ten hospitals as a dermatologic consultant.

In general the teaching programs follow the previously established pattern. A recent change in the fourth-year teaching is still in its trial stages but already promises good results. The students are assigned to this Department in small groups one morning and one afternoon each week for a month, which enables them to spend some time in the histopathology and mycology laboratories, witness x-ray epilation and follow-ups, and have one session in the Syphilis Clinic. Professor Cannon demonstrates the techniques of electro-desiccation, scarification, and others, in the removal of warts, scars, angiomas, precancerous and cancerous lesions. Dr. William M. Huber conducts one session emphasizing the cutaneous manifestations of internal disease. Only the surface of the many subjects can be touched but it is hoped that it will serve to emphasize the essential linkage of dermatology with all other branches of medicine. The Department's annual syphilis symposium for the fourth-year students was held in March. Professor Hopkins' weekly seminars for the graduate students had the benefit of several outside lecturers and the curriculum was extended to include a course on industrial dermatoses by Professor Samuel M. Peck at Mount Sinai Hospital. Professors Hopkins and Rhoda W. Benham, with the assistance of Dr. Lucille Georg and others, again gave the course on mycology.

Investigative projects continue to strain our facilities to the utmost. Professor Hopkins and Dr. Huber are studying staphylococcus sensitization in rabbits. Professor Paul Gross is carrying on a comparative study of the effect of undecylenic acid, natural unsaturated fatty acids, and biotin on psoriasis. Professor George C. Andrews is investigating the erythema dose of soft roentgen radiation, the historadiography of tissue sections, the use of thorium-X in the treatment of certain dermatoses, and the treatment of acne vulgaris with the use of hormones. Dr. Anthony N. Domonkos is assisting in the first two. Professor Cannon, with Drs. Meyer H. Slatkin and Emmett S. Lupton, continues the study of the efficacy of various forms of penicillin in early, latent, and late syphilis and neurosyphilis, of the blood levels attained by each product on varying dosage schedules and their relation to kidney function, with Rosaline Moses cooperating in the latter. Under Professor Cannon's supervision, Drs. Charles M. Howell, Jr. and Roberts B. Pappenfort, Jr. are studying the results of oral and parenteral aureomycin therapy in several of the graver dermatologic diseases and Miss Moses has determined aureomycin blood levels in all cases treated. Professor J. Lowry Miller continues his work with bacitracin and with the topical use of dihydrostreptomycin. Dr. Donald Rosman has been investigating mast cells, experimentally produced mast cell tumors, and studied their relationship to the problem of urticaria pigmentosa, trying to elucidate the pathogenesis of this dermatosis. Professor Gerald F.

Machacek is preparing a report on the occurrence of the sarcoid syndrome in patients suffering from cryptococcosis. Dr. Helen O. Curth has continued her studies of Behcet's syndrome or aphthosis and of acanthosis nigricans and its relation to cancer. She has been awarded a grant from the American Cancer Society for the latter project. Dr. Carl T Nelson is studying the changes in the electrolyte patterns of blood and tissues in anaphylaxis, microbial sensitivity, and allergic dermatitis in association with Dr. Charles L. Fox, Jr. of the Department of Bacteriology and supported in part by a grant from Ciba Pharmaceutical Products, Inc. He is continuing the clinical study of sarcoidosis begun two years ago with investigation at present of tissue reactions to phospholipids derived from sarcoid material. Dr. Nelson is also studying further the reactions of *Pityrosporum ovale* in patients with certain dermatoses of unknown origin. Dr. Eugene F. Kelley has completed his clinical trial of the use of the sclerosing solution in the treatment of sebaceous cysts and the report is in press.

There have been a few changes in personnel. Dr. Benjamin Chester left to join the United States Public Health Service and Dr. Emmett S. Lupton has assumed charge of the Syphilis Clinic in his place, in conjunction with Dr. Meyer H. Slatkin. Dr. Donald Rosman is now in charge of the treatment of syphilis in pregnancy and lectures to the third-year students in that subject. Professor Paul Gross was advanced to Associate Clinical Professor and Drs. William Huber and Royal M. Montgomery were appointed instructors.

Among the extramural courses given by the staff members during the past year have been one on radiotherapy in skin diseases at the American Academy of Dermatology by Professor Andrews. Professor Machacek assisted Dr. Fred D. Weidman of the University of Pennsylvania in the course on histopathology at the American Academy of Dermatology in December, and Dr. Carl T. Nelson directed the course on bacteriology of the skin at the same meeting. Dr. Huber was appointed a consultant to the United States Army and lectures to the medical staff at West Point once a month.

## DEPARTMENT OF MEDICINE

Professor ROBERT F. LOEB, Executive Officer

The Department of Medicine suffered an irreparable loss through the untimely death of Professor Randolph West on May 20, 1949. Professor West made numerous and enduring contributions to medical science. His capacities as a teacher of medicine, his skill as a physician, and his wise and selfless counsel will continue to inspire the colleagues and students who were privileged to come under his influence.

Professors Arthur E. Neergaard and Edgar Stillman retire after many years of participation in the teaching activities of the Department. Professor Ed-



mund R. P. Janvrin also retires at Bellevue Hospital. Professor Richard L. Riley has resigned to become Associate Professor at New York University College of Medicine. Dr. William D. Blake has resigned to become Instructor in Physiology at Yale University School of Medicine.

Promotions not mentioned earlier include Drs. Eleanor DeF. Baldwin, Julia M. Jones, and René Wégria, who became Assistant Professors. Professor Morris Dinnerstein has been promoted to Clinical Professor of Medicine at Bellevue Hospital. Dr. Sidney C. Werner was advanced to Assistant Professor of Clinical Medicine. Professor Robert C. Darling has been designated Co-ordinator of Physical Medicine and Rehabilitation working under the grant from the Baruch Committee on Physical Medicine.

During the past year four Fellows from foreign universities have been engaged in the activities of the Department. These have included Dr. C. R. B. Blackburn, Rockefeller Foundation Fellow from Sydney University in Australia; Dr. Pierre Alphonse, Fellow of the Foundation Suisse from the University of Geneva; Dr. A. G. Spencer, Bolton Pollard Fellow from the University College Hospital in London; and Dr. Frederic Stephan, Rockefeller Foundation Fellow from the University of Strasbourg in France. Visiting scholars from many foreign countries have from time to time been guests of the Department. In addition, the Department afforded research opportunities for fellows of the National Research Council, the Life Insurance Medical Research Fund, and the United States Public Health Service.

A most constructive experiment in pedagogy was undertaken this year. In the past approximately thirty didactic lectures have been given to the third-year class by members of the teaching staff. This year most of these lectures were given by students of the fourth-year class who were selected on the basis of outstanding achievement during their medical clerkship in the third-year. Each student was assigned a subject and also assigned a mentor from the Faculty of Medicine with whom he might consult in the preparation of his lecture. The level of performance of the student lecturers was highly creditable and in most instances stimulated active and free discussion on the part of the students and faculty mentor at the termination of the formal presentation. The success of this program warrants its continuation.

The scope of the Saturday Combined Clinics was broadened this year to include a number of guest speakers from other institutions who presented original work of unusual interest. Included among these lecturers were Professor H. A. Krebs of Sheffield University, Professor Eugene Du Bois of Cornell University Medical College, Professor William S. Tillett of New York University College of Medicine, and Dr. Rene Du Bos of the Rockefeller Institute for Medical Research.

There now exists a close and highly desirable integration of the teaching by members of the Department of Medicine located at the Medical Center and those at Bellevue Hospital and Goldwater Memorial Hospital. The groups

at the latter units give freely of their time for teaching exercises at the College and members of the staff from the Presbyterian Hospital participate actively in conferences and ward rounds at these sister institutions. Members of the Department at Bellevue and Goldwater Memorial hospitals also visit and teach on the wards of the Presbyterian Hospital. The wards at Bellevue and Goldwater Memorial continue to be of unusual value in the teaching of physical diagnosis under the direction of Professor Yale Kneeland. The expansion of the Columbia Research Service at that hospital through the integration with the New York City Public Health Research Institute has greatly enhanced both research and teaching facilities.

Research work in the Department has continued at an active pace and at a level of excellence which is most gratifying. Deep appreciation is expressed to the many individuals and organizations whose generous financial support has made these investigations possible. It is a matter of serious concern that more University funds and adequate spatial facilities are not available for outstanding young investigators who have been trained in the technique and critiques of sound research.

Professor Stanley E. Bradley, with Dr. Gilbert H. Mudge, has studied the excretion of sodium, potassium, and water in diabetes insipidus during the application of abdominal compression. Together with Drs. William D. Blake and J. Leonard Brandt of the Long Island College of Medicine, he has embarked on studies of the renal circulation and electrolyte excretion. The effects of cardiocirculatory imbalance on hepatic and renal function as related to operative procedures are being studied by Professor Bradley with Dr. David V. Habib of the Department of Surgery. Professor Bradley and Dr. Archibald Macpherson, a Fellow of the Medical Research Council of Great Britain, have collaborated in further studies of hepatic blood flow and hepatic function before and after portocaval anastomoses for the treatment of cirrhosis of the liver. Dr. Blake and Professor René Wégria extended their studies on the effect of increases in renal vein pressure upon the reabsorption of salt and water and also made direct observations on the effect of decreased glomerular filtration on sodium and potassium excretion. Professor Robert W. Berliner, with Drs. Thomas J. Kennedy and James G. Hilton, at the Goldwater Memorial Hospital, has extended his studies on the secretion of potassium by the renal tubules and the exchange of this ion with sodium across the tubular cells. This work has proceeded with free and generous exchange with Professor Alfred Gilman of the Department of Pharmacology and Dr. Mudge, who have independently made allied observations. Professor Berliner, Drs. Kennedy, Hilton, and Tsai-Fan Yu, and Professor Gutman have also studied the mechanisms which govern the elimination of uric acid by the kidney in gouty and normal subjects. Drs. John B. Taggart, Richard J. Cross, and Mudge have embarked on a series of experiments concerning the metabolic events which underlie active transport in renal tubule cells.

Professor George A. Perera with Drs. Kermit L. Pines and Howard Hamilton has extended his studies concerning the relation of the adrenal cortex to hypertensive vascular disease. This group has found that in hypertensive patients cortical extract or Compound E tend to lower the blood pressure in contrast to desoxycorticosterone which raises it. Professor Perera and Dr. Pines have also continued their survey of the natural history of hypertensive disease. Dr. Abbie I. Knowlton and Dr. Emily N. Loeb, together with Professor Beatrice C. Seegal of the Department of Bacteriology and Dr. Herbert Stoerk of the Merck Institute, have continued studies on the effect of nephrotoxic sera and certain adrenal steroids upon the blood pressure of rats. Professor Randolph West and Drs. Knowlton and Hamilton studied the effect of adrenocorticotrophic hormone in patients with primary myxedema and with long standing hypopituitarism.

Dr. Marcel Goldenberg has continued his studies on nor-epinephrine. Together with Dr. M. Farber and Professor Erwin Chargaff of the Department of Biochemistry, he has demonstrated the presence of nor-epinephrine in crystalline epinephrine derived from animal sources. Drs. Goldenberg and Pines, with Professors Virginia Apgar and Ralph A. Deterling, Jr. of the Department of Surgery, demonstrated the clinical value of infusions of nor-epinephrine in certain types of shock. Dr. Henry Aranow, Jr. and Dr. Goldenberg have extended their studies on the diagnosis of pheochromocytomas with their benzodioxane test. At the Goldwater Memorial Hospital Professor Gutman, with Drs. Donald M. Watkin, Herman Froeb, and Harold B. Trachtenberg, has carried out a critical evaluation of the rice diet in hypertensive disease. In addition this study has included studies on renal function with Professor Berliner's group and observations on cholesterol metabolism with Professor Forrest B. Kendall's group.

Studies on arteriosclerosis by Professor Kendall and Professor Margaret Bevans of the Department of Pathology, together with Drs. Alfred Steiner and Jack D. Davidson, carried on at the Goldwater Memorial Hospital, have progressed in a most gratifying manner in the past year. Studies on phospholipids have been extended.

On the Chest Service at Bellevue Hospital Professors Richard L. Riley and André Cournand, together with Drs. Kenneth Donald of London and Robert Austrian, made an outstanding contribution to the understanding of the relationships between ventilation and perfusion in normal and abnormal lungs. With this group Professor Cournand continued his long-term study of the early and late effects of pneumonectomy on pulmonary ventilation and circulatory functions. With Dr. Richard T. Cathcart and Professor Dickinson W. Richards, Jr. of the First Medical Division at Bellevue Hospital, Drs. M. Irené Ferrer and Réjane M. Harvey, and Professor Cournand made systematic studies of the early action of digoxin on the dynamics of the circulation and have also made comparative measurements of cardiac output by the direct

Fick method and the Nickerson ballistocardiograph. Professor Cournand, with Dr. Aaron Himmelstein of the Department of Surgery and Professor Janet Baldwin of New York University College of Medicine, published a book entitled *Cardiac Catheterization in Congenital Heart Disease*. Professors Richards and Cournand, together with Dr. Baldwin, have published the results of extensive studies on disturbances in lung function in pulmonary fibrosis and emphysema. Dr. John R. West has constructed a new device for the simultaneous graphic registration of two leads of the electrocardiogram and two intravascular pressure curves.

Professor Robert L. Levy, Drs. James A. L. Mathers and Myron C. Patterson, together with Professor John L. Nickerson of the Department of Physiology, have continued studies on the dynamics of the circulation before and after the treatment of cardiac insufficiency. Professor Levy reported a long-term study of acute serofibrinous pericarditis of unknown etiology. He also made follow-up studies of patients who had been given his anoxemia test in the past ten years. Professor Wégria, with Drs. Charles W. Frank, Richard P. Keating, Jr., and Fritz Dreyfus, and Henry P. Ward, a third-year medical student, has studied the effects of nor-epinephrine, aminophylline, tetraethylammonium chloride, morphine, and other drugs upon coronary blood flow in the dog. Professor Wégria also demonstrated the effect of nitroglycerine given in therapeutic dosage on the cardiac output in normal male subjects.

Professor Karl Meyer and Dr. Maurice Rapport have continued studies on the chemical characterization of interfibrillar cement substances and their enzymatic breakdown. Together with Professor Charles A. Ragan and Dr. Edward E. Fischel, they have attempted the isolation of the native protein compound of chondroitin sulfate as it occurs in the tissue of heart valves and tendons. A new turbidimetric method has been developed by Professor Meyer and Dr. Rapport for the assay of chondroitin sulfate. Dr. Rapport has, incidentally, characterized the chemical nature of serotonin, a pressor substance normally present in human blood serum. Professor Meyer and Dr. John Prudden of the Department of Surgery have continued their studies on the increase of lysozyme in the stools of patients with ulcerative colitis.

Professors Ragan and Meyer have shown that the hyaluronic acid of the fluid in patients with rheumatoid arthritis is considerably less highly polymerized than is that of normal joint fluid. Professors Ragan and Ralph H. Boots made a survey of 374 patients with rheumatoid arthritis who have been followed in excess of five years. Correlation of the course of the disease with various types of therapy and with streptococcus agglutination tests have proven most revealing. Professors Ragan and Harry M. Rose have extended the application of their test for rheumatoid arthritis based on the agglutination of sensitized sheep cells by blood sera. Drs. T. Lloyd Tyson, Hilary Holmes, and Eli Bauman, in conjunction with Professor Ragan, have tested the value of a copper compound and a trivalent gold salt combined with BAL

in the management of arthritis. Professors Ragan and George A. Perera and Dr. Pines have confirmed the observations of Hench and Kendall on the value of Compound E and adrenocorticotrophic hormone in severe rheumatoid arthritis and are attempting to clarify the mechanism of action of these substances. Dr. Fischel has carried out studies on the so-called "auto-antibodies" in rheumatic fever and also the increase of serum complement in this disease. He and Dr. Baruj Benacerraff, a visitor in the Department of Neurology, have correlated the alteration in serum complement level in guinea pigs sensitized with small and large amounts of antibody.

Professor Rose has continued studies which clarify in part the characteristics of the antiviral substances in the secretions of the respiratory tract. He has also continued his studies in rickettsialpox and found that aureomycin exerts a prompt therapeutic effect and appears to interfere with the immune response when given early in the disease. Professors Kneeland and Rose first demonstrated the therapeutic effect of aureomycin in patients with primary atypical pneumonia. Katherine M. Price, working with Professor A. Raymond Dochez of the Department of Bacteriology, has been studying the adsorption of influenza virus on certain bacteria and on inanimate particles.

Professor Michael Heidelberger and Dr. B. H. Waksman have extended studies on the quantitative determination of the second component of human and guinea pig complement. Dr. John B. Brooksby of the Virus Research Institute of England, working with Professor Heidelberger, has been attempting to apply the principles developed for the determination of the third component. Dr. Robert C. Krueger has made a quantitative comparison of the antibody properties of globulin fractions obtained by salt fractionation and alcohol precipitation. Professor Heidelberger, with Harold Markowitz and Marie De Lapi, has made a three-year follow-up study on the persistence of significant antibody titers following the injection of pneumococcus polysaccharides into volunteers. Paul Maurer has found that crystalline egg albumin may be partially deaminated without changing its immunological characteristics. Dr. Daniel L. Larson has continued to study antibody production in patients with leukemia and lymphomas as contrasted with normal subjects and patients with Addison's disease and diabetes mellitus. Professor Joseph C. Turner has continued his studies on the effects of vaccinia virus on tumor growth. It has been possible to influence favorably the mortality of mice suffering from highly fatal leukemia by injecting animals with virus even after the disease is well established. Dr. Robert A. Kritzler has studied the structural changes resulting from the injection of virus into tumors.

In conjunction with Professor West and Professors David Rittenberg and David Shemin of the Department of Biochemistry, Dr. Irving M. London has continued the study of a number of problems in porphyrin, protein, and cholesterol metabolism with the aid of isotope techniques. Further studies on the origin of bile pigment in humans have confirmed the finding that there

is a significant source of bile pigment other than the hemoglobin of mature circulating erythrocytes. It has also been shown that the half-life time of serum cholesterol in a normal man is about nine days. Studies have also been made on the rate of protein synthesis and the size of the metabolic pool of nitrogen in patients with thyroid dysfunction and in subjects receiving adrenocorticotrophic hormone. Dr. Frédéric Stephan has been studying the effects of thyroidectomy and adrenalectomy upon the electrolyte and water metabolism of rats and dogs treated with desoxycorticosterone and posterior pituitary substance. Dr. Alfred G. Spencer has been attempting to develop a sensitive biological assay method for small amounts of salt and water hormones of adrenal origin.

Professor West continued his studies on the effects of vitamin B<sub>12</sub> in pernicious anemia. He also studied the possible effects of cobaltous salts and of thymidine in pernicious anemia. Dr. Blackburn made extensive studies on certain factors regulating the escape of the potassium ion from red blood cells. He found that lead, mercury, and cadmium in low concentrations enhanced the escape of potassium and that cystein and BAL had an inhibitory effect. Dr. Stuart W. Cosgriff has been carrying out observations concerning the significance of fibrogen B in the diagnosis and prognosis of thrombo-embolic disease.

Professor J. Burns Amberson reported from the Chest Service at Bellevue Hospital that studies under Dr. William H. Stearns on the treatment of tuberculosis with dihydrostreptomycin and para-aminosalicylic acid are continuing. Work is also in progress, under the direction of Dr. Julia M. Jones, for study of rehabilitation in tuberculous patients. Dr. Bettina Garthwaite is organizing and directing studies in antibiotic therapy in various forms of pulmonary infection.

Professor Alvan L. Barach, together with Drs. A. Chesmore Eastlake, Jr., Gustav J. Beck, and Hylan A. Bickerman of the Goldwater Memorial Hospital, has extended his studies on aerosol antibiotic therapy in suppurative disease of the respiratory tract. This group has also continued studies on the value of the immobilizing lung chamber in the treatment of pulmonary tuberculosis. Professor Barach and his group have carried out studies on the effect of febrile reactions induced with typhoid vaccine in the management of bronchial asthma and have extended studies on the value of bronchoscopic aspiration in intractable asthma.

Professor Franklin M. Hanger, Jr. has continued studies on disease of the liver, and Professor J. Arthur Patek, Jr. at the Goldwater Memorial Hospital has continued studies on the treatment of cirrhosis of the liver in experimental animals. A survey of patients with cirrhosis treated with Professor Patek's regimen has revealed a 30 percent survival rate after five years as contrasted with a 5 percent survival in a control series. Professor Kenneth B. Turner has

demonstrated that an enzyme promoting esterification of cholesterol in serum *in vitro* is decreased in certain types of liver disease.

Professor Robert C. Darling has studied certain responses to exercise during early convalescence of patients, and is studying the oxygen consumption associated with various bed-chair activities in order to make more rational the management of patients now subject to severely restricted activity.

Professor Sidney C. Werner, in conjunction with Dr. Howard B. Hamilton and Professor Edith H. Quimby of the Department of Radiology, has continued studies on the use of  $I^{131}$  in the diagnosis and treatment of thyroid disease. Dr. Laurance D. Goodwin has participated in these studies. Professor Werner has also collaborated with Professor John S. Lockwood and Dr. David V. Habif of the Department of Surgery in studies on the effect of operative procedures on the requirements of protein and calories from other sources.

Dr. William H. Sheldon has been preparing an atlas for somatotyping men and has completed a volume on a ten-year follow-up study of two hundred delinquent youths studied from the anthropological, psychiatric, medical, and sociological angles. Problems concerning the importance of psychological factors in ulcerative colitis, amenorrhea, and hypertension have been under investigation by Dr. Kenneth Kelley and his associates in the Department of Psychiatry.

During the past year Professor Gutman received a Francis Amory Award from the American Academy of Arts and Sciences. Professor West received posthumously the first Goldberger Award in Clinical Nutrition for his pre-eminent studies on pernicious anemia. Professor Heidelberger was re-elected President of the American Society of Immunologists. Professor Kneeland was appointed Senior Medical Consultant to the First Army Area. Professor Perera acted as Expert Civilian Consultant to the Surgeons-General Service in the European Command, and Professor Hamilton Southworth served in a similar capacity in the Far East. Professor Hanger served as general manager for the meeting of the American College of Physicians this year, and Professor Ragan is Secretary of the American Rheumatism Association. Professor Meyer delivered an address at the opening of the Detroit Institute of Cancer Research. Dr. George A. Carden and Professors Loeb, Richards, and Kenneth B. Turner were awarded Presidential Certificates of Merit for their contributions to the war effort.

#### PHYSICAL MEDICINE

The medical services of the Institute for the Crippled and Disabled have been extended over the past year. Dr. James A. Coss, Jr. has been appointed to the medical staff as Chief Internist, and this appointment represents another logical development in the rehabilitation field. The medical service

views the whole individual patient and designs a therapeutic regime planned to meet his total needs.

Undergraduate medical instruction in physical medicine is presented in integrated form throughout the clerkships in the hospitals affiliated with the University. Two postgraduate courses were given this year, and the course for residents in basic material related to physical medicine was somewhat curtailed.

Research in the Posture Clinic was continued under Dr. Hans Kraus and a third report presents evidence of the results of treatment related to specific exercises.

Professor Darling has made an intensive study of programs of physical medicine and rehabilitation in university centers throughout the country. He has also prepared an outline for a residency program in this field which includes intensive training in neurology and medical orthopedics as well as certain subspecialties in internal medicine.

#### OCCUPATIONAL THERAPY

The school year of 1948-1949 opened with seventy-three registrants, of which twenty-eight were in clinical affiliations. The forty-five students in school came from fourteen states, Hawaii, and one from Czechoslovakia on a World Health Organization scholarship. Seven were veterans while four received scholarship aid from the University and the Bureau of Vocational Rehabilitation. Forty-five colleges or universities and three schools of nursing contributed to the preprofessional work of these students.

In 1949 twenty-seven candidates completed the requirements of the Faculty of Medicine for graduation—nine received the Bachelor of Science degree and eighteen received the Certificate in Occupational Therapy. All of the graduates took and passed the registration examination of the American Occupational Therapy Association. The Association has reported on evaluation of the results of the past four registration examinations showing the relative position of each of the twenty-six schools that are training occupational therapists. Columbia University is listed as first.

An attempt was made to introduce greater clinical orientation throughout the whole curriculum. This was accomplished by means of patient demonstrations in lecture courses, student laboratory periods, visual aids, and a program of hospital orientation for all incoming students. The latter program involved placement of new students in the various occupational therapy clinics of the hospitals at the Medical Center for weekly periods of observation. Through the use of space at the Institute for the instruction of some of the skills courses, it is hoped that it will be possible to allot more of the student's time to clinical observation at the Institute in addition to the clinics at the Medical Center.

Many outstanding conventions, conferences, and exhibits were held in the



New York area during the past year and were made available to the student body whenever feasible. A few of these were the Annual Convention of the American Occupational Therapy Association, the First International Conference on Poliomyelitis, the First National Conference and Exposition in Cerebral Palsy, the Women's International Exposition, a Physical Medicine Seminar presented by the Columbia-Presbyterian Medical Center, and a meeting of the National Committee for Mental Hygiene.

Miss Marjorie Fish, Director of Training for Occupational Therapists, requested and was granted an extension of her leave of absence until January, 1950. Miss Fish is Director of the Occupational Therapy Training Center in Sydney, Australia. Miss Edith H. Brokaw joined the staff in the fall as Instructor in Training for Occupational Therapists. Miss Brokaw not only instructed in several skills courses but acted as coördinator for all the skills courses.

#### PHYSICAL THERAPY

Professor William B. Snow reports that fifty students have been enrolled during the academic year—thirteen in the second-year and fourteen in the first-year programs leading to the bachelor's degree and twenty-three students in the one-year certificate course. Sixteen students were registered in these programs this year. In June, 1949 eleven will qualify for the Bachelor of Science degree and two for the certificate. In August, 1949 it is anticipated that twenty-one students will be qualified for certificates.

During the current year there have been sixteen students on scholarship from the National Foundation for Infantile Paralysis. The Veterans Administration has covered tuition costs for thirteen men and ten women during the current year. Some of these students have also received supplementary assistance from the National Foundation for Infantile Paralysis.

Students this past year have had resident clinical experience at the Institute for the Crippled and Disabled, New York State Rehabilitation Hospital, Newington Home for Crippled Children, New York Orthopaedic Dispensary and Hospital, and Bergen Pines Hospital. Students in public health nursing in the summer of 1948 received a period of training with the Association for the Aid of Crippled Children. For the summer of 1949 students will be assigned to the Hospital for Chronic Illness at Rocky Hill, Connecticut, and to Blythedale and Camp Oakhurst. In addition to those institutions at the Medical Center, others that have furnished general clinical experience to students during this period of instruction are: Ray Clinic, Bronx Veterans Hospital, Marine Hospital of the United States Public Health Service.

Increasing emphasis has been placed on rehabilitation during the current year. Besides strengthened relations with the Institute for the Crippled and Disabled there has been coöperation with Dr. Henry H. Kessler of Newark, New Jersey, Dr. Arthur Abramson of the Bronx Veterans Hospital, Dr.

Mandell Shimberg and Alice Seligman of Ray Clinic of the Veterans Administration, and Dr. Morton Hoberman of the New York State Rehabilitation Hospital at West Haverstraw.

To date, a total of 127 applications for the coming academic year have received consideration from which thirty-six students have been selected. It is expected that twelve will be carried over for the second year of the two-year program.

## DEPARTMENT OF NEUROLOGY

Professor H. HOUSTON MERRITT, Executive Officer

Although administrative separation of the Departments of Neurology and Neurological Surgery was effected a year ago, coöperation in teaching, research, and care of the patients in the seminars and staff meetings in which members of both Departments participate have been very effective in establishing an excellent rapport.

Particular efforts have been made toward coördinating the clinical and research work of the Departments of Neurology and Neurological Surgery with that of other departments. Drs. William F. Caveness and Joseph Ransohoff were assigned to coördinate the activities at the Institute with those of the Department of Pediatrics. Medical interns have been assigned to the Neurological Institute for a specified period of training, and in addition clinical conferences are held twice monthly for the entire medical staff.

The teaching activities of the Department have steadily increased. First-year students are given special instruction in neuroanatomy by Professors Henry Alsop Riley and Byron Stookey in coöperation with Professor Adolph Elwyn of the Department of Anatomy. The second-year introductory course in neurology was given at the Montefiore Hospital and at the Neurological Institute by Professor Frederick A. Mettler and Dr. Carmine T. Vicale, with the assistance of other members of the Department. The third-year ward teaching of both the required and elective courses has been conducted by Drs. Vicale, Caveness, Sidney Carter, and Daniel Sciarra, together with other members of the staff. The elective course has been very popular and at times there have been more students than could be adequately handled. Assignment of some of the elective students to the Montefiore Hospital in the summer months has proven of great value in broadening the training of the students and relieving the congestion at the Institute.

The teaching of the students at the Montefiore Hospital has been ably conducted by Professor Benjamin H. Balser during the interim in which there was no active Director of the Neuropsychiatric Service at that hospital. Dr. Theodore J. C. von Storch has been appointed to fill this vacancy, effective July 1, 1949. Dr. von Storch will be a valuable addition to the teaching staff

and will lend a great impetus to the experimental work at the Montefiore Hospital.

The research activities of the Department have continued at their high level. On the clinical side, Professor Paul F. A. Hoefer has continued his studies of the electrical activity of the cerebral cortex in patients with cerebral tumors, encephalitis, migraine, and cerebral vascular accidents. He has also made an extensive study of the electrical potentials of the somatic muscles in patients with disorders of movement and in patients with lesions of the spinal cord. The problem of myasthenia gravis is being studied by Professor Hoefer in cooperation with Dr. Henry Aranow, Jr. of the Department of Medicine. New anticholinesterase drugs are being tested on patients with this disease.

The physiological basis of headache and the more efficient methods of treatment are being studied by Dr. Arnold P. Friedman in the Headache Clinic at the Montefiore Hospital.

Other clinical studies include: the physiological basis and therapy of the convulsive disorders, by Drs. Jerry C. Price, Carter, and Sciarra; the treatment of abnormal movements, by Drs. Lewis J. Doshay and Kate Constable; and, the therapy of multiple sclerosis by Dr. Ludwig V. Chiavacci and other members of the Department.

Professor Elvin A. Kabat has continued his studies on experimental immunochemistry. A book outlining the rationale and background in this field by Professors Kabat and Manfred Mayer of Johns Hopkins University was published by the Charles C. Thomas Company in 1949. Studies on the cerebrospinal fluid gamma globulin in multiple sclerosis have been continued by Professor Kabat in association with Dr. David A. Freedman, Jean P. Murray, and Vesta Knaub. Immunochemical studies on blood group substances have been continued by Professor Kabat in collaboration with Dr. Harold Baer, Mrs. Knaub and Sam M. Beiser. Professor Kabat received the Eli Lilly Award for research in immunology.

Professor David Nachmansohn continues his research work on the basic mechanism of nerve activity. During the last few years Professor Nachmansohn and his associates have succeeded in correlating a number of chemical reactions with electrical manifestations of nervous function. Another line of research was devoted to the study of the effects of irradiating energy on the chemical reactions underlying nervous function. With the aid of radioactive isotopes, Dr. Mortimer M. A. Rothenberg was able to measure the exchange of ions across nerve membranes in resting condition and activity.

A new rapid colorimetric method for the determination of acetylcholine was developed in Professor Nachmansohn's laboratory by Dr. Schlomo Hestrin. It has already led to important new information. An intermediate product of acetylation has been discovered which is not only of interest for nervous function but also for cell metabolism in general.

Dr. Saul Korey studied the properties of a nonconductive muscle fibril

prepared according to the indications of Szent-Gyorgyi. A great number of compounds known to affect the contraction of intact muscle were tested and studies of the enzyme activities of this preparation were initiated.

Drs. Malcolm B. Carpenter and John Whittier, working in Professor Frederick A. Mettler's laboratory, have produced abnormal involuntary movements in animals by placing electrolytic lesions in the subthalamic nucleus. The results of their studies will be of great importance in the understanding of such conditions as Parkinson's disease in humans.

One of the most fundamental studies of the Department, initiated in 1947, is that of topectomy or localized cortical excisions in the treatment of patients with functional disorders of the nervous system. The therapeutic implications of this work are great, and in addition valuable information is being obtained which will lead to a better understanding of the physiology of the nervous system. This study, under the direction of Professor Mettler, is a coöperative undertaking involving several departments in the University and the Departments of Mental Health of New Jersey and New York. Members of the Department of Neurology who are active in this study include, in addition to Professor Mettler, Professors Harry Grundfest and David Nachmansohn, and Drs. Paul Teng, William F. Caveness, and P. Francisco Garcia. The results of the first year of work will be published shortly by Paul B. Hoeber in a book entitled: *Problems of the Human Brain*.

The laboratory of electrophysiology, under the direction of Professor Harry Grundfest, is conducting a number of studies. Dr. Jonathan Magnes, a visiting Fellow from the Department of Physiology, Hebrew University, Jerusalem, has completed a study of the effects on excitability of dorsal root fibers produced by activity in adjacent dorsal roots; Dr. Samuel Middleton and Herta Middleton, visiting Rockefeller Fellows from the Institute of Physiology of the University of Santiago, Chile, have completed an electrophysiological study of the vagal depressor fibers of the cat; Dr. Robert Sengstaken is carrying on a study of spinal-cerebellar pathways and their electrophysiological effects in the cerebellum; Dr. William B. Carter is engaged in a restudy and extension of earlier work on spino-olivary systems; Dr. Sidney Cohen is studying by electrophysiological methods the localization in the thalamus of afferent activity; Drs. Murray Glusman and Ransohoff are studying the parameters of the electrical excitability of various regions of the cortex in cats as a preliminary to future work on the human cortex.

Professors Abner Wolf and David Cowen, in the neuropathological laboratories of the Department of Pathology, have initiated a complete study of all of the tumor material which has been collected by the Department. This includes over three thousand cases and is perhaps the largest collection in the world.

Studies on the experimental production of encephalomyelitis in animals

by Professors Wolf and Kabat have progressed to the point where chronic lesions can be produced which are similar to those of the disease multiple sclerosis in humans.

The Department regrets to announce the loss, through death, of two of its most distinguished members, Professor Irving H. Pardee and Professor Leon H. Cornwall.

## DEPARTMENT OF NEUROLOGICAL SURGERY

Professor J. LAWRENCE POOL, Executive Officer

During its first year as a separate entity the Department of Neurological Surgery has sought to establish the closest relations with the Department of Neurology and develop optimum contacts and coöperation with the many departments in closely related fields. Joint weekly clinical conferences with the neurological staff were inaugurated and have enjoyed a steady growth in attendance. All members of the Department have participated in the heavy teaching program. Professor John E. Scarff has aided greatly by conducting part of the fourth-year lecture course. Drs. Fritz Cramer, Lester A. Mount, Edward B. Schlesinger, Joseph Ransohoff, and Thomas J. Bridges, Jr. of the Department of Surgery have participated in teaching programs for the third-year medical students, student and graduate nurses, orthopedic residents, and other groups.

On the Service of Neurology grand rounds have been initiated on Thursday afternoons, and the regular Tuesday morning conference has been augmented by bimonthly neuropathological case presentations by Professor Abner Wolf of the Department of Pathology and his staff.

The research activities of the Department cover a wide variety of subjects and no attempt will be made to mention each individual project. Professor Byron Stookey, aided by Dr. Charles Brackett of the resident staff, is engaged in the study of the mechanisms, clinical picture, and therapy of herniated nucleus pulposus.

Professor Scarff, as well as conducting a ten-year follow-up study on the treatment of hydrocephalus, has been actively and successfully investigating the relief of pain by unilateral prefrontal lobotomy. Dr. Louis Guzman has carried out many of these procedures under Professor Scarff's direction.

Dr. Cramer is collecting material on the neurosurgical aspects of cervical cord compression by arthritic ridges, and, with the coöperation of Dr. Warren Kimsey of the resident staff, is also studying hemangioblastic tumors of the cerebellum.

Dr. Mount has continued his interests in the problems of arteriography in coöperation with Dr. Ernest Wood of the Department of Radiology, and

most of the resident staff has actively participated in this program. Dr. Mount has also initiated a national registry of cerebral aneurysms and vascular abnormalities.

While maintaining his activity in the analysis and treatment of abnormal muscular states and as Director of the research program at the Institute for the Crippled and Disabled Dr. Schlesinger has been energetically investigating the uses of radioactive isotopes in neurological surgery.

Two new members have been added to the attending neurosurgical staff during the past year—Drs. Thomas J. Bridges, Jr. and Joseph Ransohoff. Dr. Bridges has been on loan from the Department of Surgery until July 1, 1949 at which time his appointment to the Service of Neurological Surgery will be in effect. Dr. Bridges has continued his work on the study of sympathetic pathways, in coöperation with the Department of Surgery, and at the same time is working on a new concept concerning the mechanism and treatment of communicating hydrocephalus.

Active participation in the New Jersey and New York States' programs on the study of the human frontal lobe has been continued by the Executive Officer of the Department of Neurological Surgery in conjunction with Professor Frederick A. Mettler, the director of the coöperative undertaking, and Professors H. Houston Merritt and Harry Grundfest of the Department of Neurology; Abner Wolf of the Department of Pathology; Nolan D. C. Lewis and Dr. Paul H. Hoch of the Department of Psychiatry. Motor and autonomic functions and thresholds of electrical excitability are also under investigation. Dr. Ransohoff is an active and enthusiastic participant in this project.

The degree of coöperation between the Neurological and Neurological Surgery services is evidenced by the rapidity with which patients requiring operative intervention are being handled. The efficiency of this system is in part responsible for the steadily increasing case load being handled by our operating rooms. During each of the last four months more than three hundred hours of operating has been recorded with a new high of 379 hours in March, 1949, including one hundred major operations, 28 minor operations.

It is with regret that this Department announces the resignation of Dr. Leo M. Davidoff, Professor of Clinical Neurological Surgery.

## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

The year has been one of quiet development of our program, with modifications to meet new conditions but with no major changes.

A plan for Senior electives has been instituted in which each student may request one or two units of eight weeks each, either in a new clinical service or for advanced experience in one to which she has been assigned previously.

In addition to the services available at the Medical Center, arrangements were made for a group to go to the Mary Imogene Bassett Hospital for rural community nursing, and for a small number to gain experience in cancer nursing at the Memorial Hospital in New York City. Introduction of seventy-five hours more of nursing practice on the wards in the first term, with transfer of seventy-five class hours to the Freshman term has proven advantageous not only in relieving the pressure in the first term but making the adjustment to patients easier for the students.

The benevolent activities of the Department have been especially successful this year. Under the leadership of the Class of 1950, the annual Red Cross drive resulted in donations of \$1,350 from the Medical Center. The spring bazaar, organized and managed by the Class of 1949 for the benefit of the Foster Parents Plan for War Children, Inc., realized a profit of \$1,900 which was donated through the Columbia Committee for Community Service.

The Outpatient Nursing Service continues to be a vital factor in demonstrating continuity of care for patients. During the year eighty-seven students made 2,717 home visits and 528 patients received nursing care. The experience included also ninety-two field trips to other agencies exclusive of the regular half-day observations at the Visiting Nurse Service of New York, presentation of seventy-seven family studies, and 137 formal conferences.

Visitors continue to come from many foreign countries and from other institutions in the United States and Canada. Those from abroad came chiefly from England, Denmark, Finland, Switzerland, Sweden, and Norway.

During the spring, neighboring colleges and universities were invited to send faculty and students to visit us on April 26 and 27. Four colleges sent three faculty members and thirty-eight students toured the Hospital and Maxwell Hall.

Miss G. Harriet Mantel, Instructor in Nursing, is serving as Chairman of the Speakers Bureau of the Recruitment Committee of the New York City League of Nursing Education. On May 10 she appeared on a television program interpreting nursing.

The Dean Sage Scholarship was awarded to Lillian Helen Brady, Class of 1951. This is the third award of this scholarship which provides all tuition and University fees for a degree candidate.

The Alumnae Association continues to grant eleven scholarships annually for award by the Faculty to students in the School of Nursing. The University scholarships, of which sixteen were granted this year, are greatly appreciated. The Class of 1949 has set a precedent by donating \$100 at graduation time to be used for two scholarships—one in the Class of 1951 and one for the entering Class of September, 1949.

A special scholarship in memory of Mrs. Frederick Redpath has been donated again by her husband for award to a member of the Class of 1952.

Ninety-one graduates of the School took the State examinations for licen-

sure to practice nursing in New York State: October, 1948, seventy-four; February, 1949, thirteen; June, 1949, four. In the first two groups there were no failures. No report has as yet been received for the June group.

The Class of 1949, which graduated in the Hospital garden on June 2, numbered eighty students of whom forty-five were degree candidates. President Dwight D. Eisenhower and Bruce Barton were the commencement speakers. Mrs. Frederic de Rham, Vice Chairman of the Nursing Committee, presented the diplomas and Miss Helen Young, the pins. The corsages worn by the graduating class and the faculty were again given in memory of Mrs. Dean Sage by her son and daughter.

Everyone connected with nursing education is well aware of the nationwide interest and concern over the study of schools of nursing completed in 1948 by Dr. Esther Lucile Brown and published in the book, *Nursing For The Future*. Professor Helen C. Goodale was granted a leave of absence to serve as executive secretary to the national committee to follow up these findings and to implement the report. The wisdom of the appointment is indicated by the fact that the National League of Nursing Education has requested the extension of her leave for another year.

Professor Cecile Covell has utilized her leave of absence to study the place of the nurse in rehabilitation in various centers in the East and Middle West.

Miss M. J. Ada Mutch was appointed Assistant Professor of Nursing to replace Assistant Professor Goodale on leave.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor HOWARD C. TAYLOR, Executive Officer

This year the Department of Obstetrics and Gynecology has, in comparison with recent years, witnessed only minor changes in the composition of its teaching staff. Dr. Joseph Jailer, an important factor in the Department's research program in endocrinology, resigned at the beginning of this academic year, but is expected to resume his work here in August, 1949. Dr. Charles H. Duncan has recently been assigned to the Department as a special Research Fellow for work on a project concerned with the vascular physiology of the reproductive organs. Drs. Saul B. Gusberg and Charles M. Steer have been promoted from the rank of instructor to that of associate. The five-year residency program instituted two years ago is developing according to plan and in a few years should produce a group of young teachers and investigators in this field.

Some definite changes have been made in the organization of instruction for the fourth year, when students in groups of about sixteen spend eight weeks in obstetrics and gynecology. During this period they devote most of



their time to clinical work with patients. In addition there have now been set up eight seminars of eight hours each in endocrinology and fertility, complications of pregnancy, abnormal labor, constitutional disease in pregnancy, gynecologic pathology, neoplastic disease, the social aspects of the specialty, and problems related to the basic sciences. These exercises are each given by a teacher selected for his special interest in the particular field and are conducted in small, informal discussion groups.

The research program has continued to develop along lines laid down in previous reports, with work going on in the fields of fertility, the physiology of pregnancy and of labor, and gynecologic neoplastic disease. A start has been made also in the exploration of what may be regarded as the psychosomatic aspects of the specialty.

The work on fertility has been carried on by Professor Charles L. Buxton working in close conjunction with Professor Earl T. Engle of the Department of Anatomy. The problem of the relationship of thyroid physiology to female reproductive function has been made the principal object of this year's work in an effort to clarify a subject which has long been regarded as important but never perfectly defined.

Renal physiology in pregnancy has continued to be an object of investigation by Professor Samuel Graff and a group working with him. Dr. Claudine Lambiotte, a Research Fellow from the University of Brussels, has made an important observation on the peculiarities of excretion of sodium thiosulphate in pregnancy. Dr. Joseph Blanchard is studying a "trueta phenomenon" and the effects of surgical shock on renal circulation. With regard to other aspects of pregnancy an effort has been made to determine, on a sound statistical basis, whether stilbestrol actually has an effect, as alleged, on the prevention of abortion. An attempt to demonstrate the value of heparin as an anticoagulant in the treatment of toxemia of pregnancy met with no success but contributed a point to the knowledge of the abnormal physiology of the disease.

Efforts to develop a method of study of the human uterine contractions are being made in several departments in the country, usually by means of mechanical measuring devices. From a laboratory of this Department a report has been made to the New York Obstetrical Society by Dr. Steer and George Hertsch on the use of a technique which measures the electrical action currents of the contracting uterus.

In the clinical field Professor Anthony D'Esopo reported a thousand consecutive cesarean sections without a fatality at the Sloane Hospital for Women. In a paper presented before the American Gynecologic Society, entitled "Changing Principles in the Indications for Cesarean Section," he evaluated the effect of the disappearing mortality in this operation on the extent of its use in solving obstetrical difficulties.

Initial work on the development of a technique for measurement of uterine

blood flow is being carried on by a group consisting of Dr. Duncan, Mr. Hertsch and Dr. Henry C. Frick, II. Such a method would be of great value as a tool for the study of many functional problems in gynecology.

The program of investigation in the cancer field has been especially active owing to grants from the American Cancer Society, the Jane Coffin Childs Memorial Fund, the United States Public Health Service, and the Isabel MacMillin Memorial Fund.

Professor Graff has been working on the synthesis of nucleic acid precursors labeled with radiocarbon. Further development of the program includes methods of analysis of radiocarbon and the isolation of individual cellular components with their constituent nucleic acids. This work is closely associated with the isolation of the virus of mouse mammary carcinoma with which this laboratory has been closely associated.

In Professor Gray H. Twombly's laboratory the object of study has been the relationship of various hormones to cancer. The central effort has been directed toward the elucidation of the metabolism of the estrogens in the liver and their excretions through the bile and kidney by means of radioactive compounds.

In the cancer field also, Dr. Gusberg has continued work on the histochemistry of precancerous tissues in the genital tract and has developed a special instrument for the biopsy of the area of the cervix in which cancer characteristically appears in its earliest stages. Dr. Equinn W. Munnell has reviewed the clinical case material of cancer of the ovary which has collected in the hospital over a twenty-year period.

Another interesting clinical study is being made by Dr. Harold Speert, in collaboration with Professor Algernon Reese of the Department of Ophthalmology, on retrolental fibroplasia. This is a disease of the newborn causing blindness and occurs particularly in prematurely born infants. Its recent rapid rise in frequency is, ironically enough, probably due to the increasing success which medicine has attained in saving the very small premature babies.

During the summer of 1948 Professor Taylor and a group of twelve other American medical teachers visited Germany under the sponsorship of the Unitarian Service Committee. The object of the mission was to re-establish scientific relationships with German medical research and education. Seven German universities—Frankfurt, Berlin, Goettingen, Munich, Tuebingen, Freiburg, and Heidelberg—were visited and at each lectures and conferences were held throughout a week. Some twenty lectures on gynecology and obstetrics were given during the course of the visit, three of which are to be published in German journals.

The principal need and objective of the Department continues to be adequate space and personnel for a research program which can begin to comprehend the broad aspects of the field of human reproduction. An idea of the vastness of the problems in this field is suggested by annual figures for losses

in the United States directly traceable to disorders in the reproductive process. These include maternal deaths—5,153; neonatal deaths of infants under one month of age—77,038; stillbirths—74,849; fetal loss from abortion—490,000. Although it is impossible to establish equivalents between fetal and adult human life, these figures total considerably more than the deaths from heart disease (429,230) and from cancer (182,005) as reported in the year 1946. These data are cited simply to draw attention to the enormous problems of a research which is at present receiving but little attention.

## DEPARTMENT OF OPHTHALMOLOGY

Professor JOHN H. DUNNINGTON, Executive Officer

No important change has occurred in the undergraduate teaching during the past year. This course of instruction has continued to be on a clinical rather than on a didactic basis. It is felt that an elective course in ophthalmology would stimulate greater interest among the undergraduate students, so renewed efforts are being made to start one. Details are being worked out for the establishment of a four-month, full-time course in the related basic sciences as a part of a preresidency training program. This course will be limited to fifteen candidates who have been assured of residencies in approved institutions. It is believed that by this means not only will a service be rendered to ophthalmology, but also that it will aid materially in developing the teaching ability of the younger members of the staff.

The Department suffered two losses by resignation. Associate Professor Murray Sanders accepted an appointment as Professor of Bacteriology at the University of Miami and Associate Professor Karl Meyer transferred to the Department of Medicine.

Under the stimulating leadership of Professor Ludwig von Sallmann the research activities have kept apace. He has continued his studies on autoradiography of the eye, and the techniques he employed in the previous year for radiosodium were used with radio-iodine and radio-phosphorus. Related to this work were studies on the effect of x-ray irradiation on the permeability of the blood aqueous barrier. The nature of the cellular defense mechanism in perimantal infections of the anterior segment of the eye and the effect of antibiotics on this mechanism are also being investigated. In collaboration with Drs. Deborah Locatcher-Khorazo and John C. Locke, Professor von Sallmann is also making cytological and bacteriological studies of the aqueous humor in uveitis in man.

Professor George K. Smelser, with the assistance of Professor von Sallmann, has reported on the correlation of the microscope and slit lamp findings in developing hereditary cataracts in mice. He is also completing his studies on the influence of steroid hormones on experimental exophthalmos. The major

part of his work has been in collaboration with several others on the physiology of the cornea in relation to contact lens wear—a confidential investigation undertaken at the request of the Surgeon General of the United States Army.

Professor Zacharias Dische is working on methods for identification and determination of animohexoses in the polysaccharides of the crystalline lens. The nucleic acids of the retina and the sulfa containing amino acids of the proteins of the lens are being investigated.

Professor Alson Braley has continued his studies, both in the laboratory and in the clinic, on the usefulness of aureomycin in various infections of the eye. He has also started work on the nutritional requirements of the virus of herpes simplex in an endeavor to determine what part the living cells play in its growth.

In the Knapp Memorial Laboratory Professor LeGrand Hardy, Dr. Gertrude Rand Ferree, and M. Catherine Rittler have conducted an experimental investigation of Luneburg's mathematical analysis of biocular vision and continued their work on color vision and lighting.

Professor Algernon B. Reese and Dr. Frederick Blodi are continuing their clinical and pathological studies on retrolental fibroplasia. The importance of this work is ever increasing, so it is hoped that more funds will soon be available for enlarging the scope of these investigations.

Dr. Otto Lowenstein, under the auspices of the Harriman Fund, is enlarging his observations on pupillary reactions in various diseases. The nature of the changes that occur early in a disease are of importance, e.g., glaucoma.

Dr. Raymond Collins has produced experimentally lesions identical to those found in sympathetic ophthalmia. The results of these researches were reported before the Association for Research in Ophthalmology at its meeting in Philadelphia on June 7.

Dr. Andrew de Roeth has determined by bioassay the distribution of aureomycin in the eye after various types of local and systemic administration. The evaluation of the effect of treatment with di isopropyl fluorphosphate (D.F.P.) on 160 patients with glaucoma was reported by Dr. Conrad Stone. Dr. Arnold Forrest is studying the effect of Grenz rays on the water uptake of the cornea.

The members of the Department continue to be active in the affairs of local and national ophthalmological societies. In recognition of his great services to ophthalmology Dr. M. Uribe Troncoso was appointed Honorary President of the First National Congress of Ophthalmology in Mexico. Seven of the twenty-one papers on the program of the American Ophthalmological Society meeting in June were presented by members of this staff.

## DEPARTMENT OF ORTHOPEDIC SURGERY

Professor ALAN DEFOREST SMITH, Executive Officer

In addition to the routine teaching of the third- and fourth-year students in fractures and orthopedics at the Presbyterian Hospital and the New York Orthopaedic Dispensary and Hospital, the Department has participated in the course in applied anatomy for third-year students. Largely through the efforts of Professor Emanuel B. Kaplan of the Department of Anatomy a course in basic sciences including anatomy, physiology, chemistry, pathology, bacteriology, and pharmacology has been developed for the residents in orthopedic surgery at the New York Orthopaedic Dispensary and Hospital and other affiliated institutions.

A member of the attending staff on the Fracture Service has acted as consulting surgeon in the First Surgical Division at Bellevue Hospital since January 1. He has devoted a good deal of time to this work and has been of material aid in teaching the orthopedic residents who have been assigned to the First Division for periods of three months in order to obtain a wider experience in the treatment of fractures.

Professor Stephen S. Hudack has continued clinical and animal studies in articular replacements as well as other phases of substitutive surgery, and also has made further studies in bone healing, particularly in bone matrix formation. Progress has been made toward the separation and identification of an important mucopolysaccharide. A surgical table for ballistocardiographic calculations and a special microtome for sectioning undecalcified bone are nearly completed.

A comprehensive study of the results of ankle injuries over the past twenty years is in progress and some of this work has been published. Clinical investigations on shoulder and elbow lesions are being continued. Fractures of the hip have been thoroughly analyzed, and fractures of the neck of the femur have been reported. The study of therapy of the sympathetic system in the form of local ganglion blocks is in progress.

Clinical investigations at the New York Orthopaedic Dispensary and Hospital include further study of spine fusion operations for lumbo-sacral lesions and of the results of removal of herniated nucleus pulposus both with and without spine fusion. A study is being made of hemophilic joints and of tendon sheath tuberculosis.

A clinic for hand cases has been started under the direction of Dr. Robert E. Carroll who has been appointed Assistant Attending Orthopedic Surgeon and Instructor in Orthopedic Surgery. Dr. Carroll spent several months at the end of his fellowship visiting hand clinics in San Francisco and Chicago.

A study of the effect of streptomycin in conjunction with surgery in the treatment of bone and joint tuberculosis was completed and the report was

read at the meeting of the American Medical Association in June. The streptomycin for this study was provided by Merck and Company, Inc.

Other conditions under investigation are orthopedic aspects of cerebral palsy, fractures of the spine, scoliosis, fibrous dysplasia of bone and cartilage, recurrent dislocation of the patella, and the late results of congenital dislocation of the hip. An attempt is being made to develop a more accurate means of measuring anteversion of the femoral neck.

## DEPARTMENT OF OTOLARYNGOLOGY

Professor EDMUND P. FOWLER, JR., Executive Officer

During the past year the Department of Otolaryngology has been organized into seven subsections, each headed by particularly qualified men: (1) general ear, nose, and throat (largely infections); (2) special surgery of the head and neck (tumor surgery); (3) special surgery of the ear (fenestration, Meniere's surgery, etc.); (4) endoscopy; (5) plastic surgery of the ear, nose, and throat; (6) audiology and phonology; and (7) laboratory investigation. This scheme has been made possible through the closest coöperation with the Departments of Surgery and Dental and Oral Surgery.

Division of the Department into subsections is felt at present largely by the residents and attending staff in the increase of head and neck surgery on the service and the emphasis on audiology, phonology, and laboratory investigation. It will, however, inevitably have its reflection in the outpatient and ward teaching of the undergraduates. There has been increased teaching of undergraduates with motion pictures and they are beginning to participate in laboratory investigation. The Coakley Memorial Prize has been set up to be given annually to the student who, in the opinion of the Department, has done outstanding work in ear, nose, and throat.

Perhaps the most spectacular work being done in the laboratory is the common cold experiment which has been carried on in conjunction with some studies on peripheral circulation in the Department of Surgery. Professor Fowler and Drs. William A. Jarrett and Robert D. O'Malley have extended the experiments started some years ago in the Department of Physiology showing that there are three types of cold—the sympathetic, the parasympathetic, and the mixed. Further experiments on the parasympathetic type of cold give additional evidence that an important factor in so-called “vasomotor rhinitis” (hay fever) is an autonomic nervous system imbalance with overaction of the parasympathetic system. Experiments with stimulation of the sympathetic trunk and severance of the parasympathetic trunk indicated that even the so-called “infectious type” of cold may be influenced by imbalances of the autonomic nervous system. It seems that infections may be enhanced

by overaction of the sympathetic system whether this is induced by drug, irritation, endocrine, or psychic factors.

A major effort in the laboratory has been directed towards ascertaining the etiology of the vestibular lesions produced by streptomycin therapy. Under the direction of Professor Fowler, Carl Feind, Dr. Fernand Montreuil, and others have sought to develop vestibular tests sensitive enough to pick up the fine changes in streptomycin poisoning which may be present with dihydrostreptomycin or small doses of calcium streptomycin. Dr. Jules Waltner has been studying the circulation of the endolymph and perilymph and the question of the presence of streptomycin in these fluids.

Mr. Feind and Mary Oliver and Dorothy Estes, both of the third-year class, have shown that streptomycin does not increase the abortion rate in rabbits.

Professor Franz Altmann and Dr. Montreuil continued their studies of Meniere's disease, both in the laboratory and in the operating room. Drs. Edwin C. Bilchick and Albert Kolar have carried on a study of the clinical and pathological findings in cases of recurrent otitis media and aero-otitis treated in the Columbia-Presbyterian Medical Center with radium to the nasopharynx.

Professor Emeritus John D. Kernan has continued his studies of serial sections of the larynx in an effort to determine the developmental pattern of the malignancy, both from the standpoint of multiple foci of development and metastatic habits.

Professor Raphaele Lattes of the Department of Surgery and Dr. Jules Waltner have found seven cases of carotid body tumor which has been hitherto considered a very rare cancer of the middle ear. Collaboration with surgical pathology has also made it possible to diagnose many cases of cancer of the lung, cancer of the antrum, etc., with the Papainiculo method.

The Section on Audiology headed by Dr. Paul Lindenberg and the Section on Phonology headed by Dr. John Eisenson have formed the basis for a Speech and Hearing Clinic. Methods for detecting hearing losses in children are being pioneered. Professor DeGraff Woodman's arytenoidectomy cases in particular are showing marked improvement after proper speech therapy. Correlation of the neurological and psychiatric aspects of patients suffering from speech and hearing disorders is being carried out by Drs. Rollo Masselink of the Department of Neurology and Richard Abel.

Dr. William Keim has been appointed Assistant Clinical Professor of Otolaryngology. He and Dr. John L. Pool of the Department of Surgery will conduct the subsection for special head and neck surgery.

Research in the Department has continued at an increased rate, supported by two grants from the United States Public Health Service and the Philip Hanson Hiss, Jr. Memorial Fund for studies of the common cold, as well as the contributions of the United States Public Health Service for streptomycin

studies, the American Otological Society, Inc. for study of otosclerosis, the Charles Hayden Fund for general studies, and the Army Medical Museum for special studies.

## DEPARTMENT OF PATHOLOGY

Professor HARRY P. SMITH, Executive Officer

The Department is in the process of developing its program for student elective courses in pathology given during the third year of undergraduate medical training. The work involves participation in current autopsies. Special emphasis is also being given to a program of systematic case study, both from departmental files and from hospital records. At present several students are collecting clinical and autopsy-room data on certain problems in endocrinology. Studies of this type permit an integration of the subject matter learned in other courses, and provides a valuable introduction to the problems and viewpoints of clinical medicine. These activities are supplemented by seminars in which the data are presented and the literature reviewed. Several undergraduate medical students have participated in experimental work. This is a valuable supplement to the type of activity just mentioned.

Professor Homer D. Hesten has performed valuable service as a consultant in connection with the autopsy service and the program of the clinical pathological conference. Professor B. Earl Clarke of St. Luke's Hospital has been most helpful in connection with undergraduate instruction. The surgical specimens which he brought to the Department each week have helped to supply a long-felt need in the instruction of second-year students.

Attention is again called to the need for alterations in the autopsy suite in order to permit effective teaching. The plan involves the removal of seats from the autopsy room to permit students in rather large numbers to be brought quite close to the autopsy table. This would enable them to see the disease process as illustrated at autopsy. Estimates have been obtained on the cost of a simplified plan which will solve many of the problems and will be far less than that of the original plan. With proper facilities, it is hoped that the usefulness of the autopsy service can be increased.

Most of the research projects of the Department are on a long-term basis and were outlined rather completely in last year's report. Gratifying progress has been made during the current year.

A comprehensive research program on blood coagulation under the direction of Professors Harry P. Smith and Joseph E. Flynn is now fully developed. The program includes several younger members of the Department who are thus enabled to acquire research experience under the guidance of senior members. Professor Flynn and Dr. Eugene T. Standley have developed new techniques for the assay of factors concerned in the formation of blood



clots. These basic techniques permit the mechanism of coagulation to be studied on a quantitative basis. This gives promise of helping to uncover basic chemical mechanisms concerned in coagulation. Quantitative methods are also necessary for detecting abnormalities in human "bleeders." The effects of therapy can be evaluated only if the abnormalities can be charted day-by-day on a quantitative basis.

Doctor Joseph Seronde, Jr. has made much progress in isolating some of the clotting factors which occur normally in blood and in certain tissues. This part of the project is also concerned with the chemical mechanics of coagulation.

A study of brain tumor material has been undertaken by Dr. Christopher A. Iannucci and Professors David Cowen and Abner Wolf, working in collaboration with members of the Departments of Neurology and Neurological Surgery. The initial work is being carried out on astrocytomas, with the expectation of eventually reviewing all of the brain tumor material.

Professor Wolf has continued his coöperative program of research on experimental disseminated encephalomyelitis with Professor Elvin A. Kabat of the Department of Bacteriology. The study of special tissue fractions has shed new light on the mechanism of the disease; thus paving the way for a better understanding of the human disorder.

Professors Wolf and Cowen have also coöperated with members of the Departments of Neurology and Psychiatry in extensive study of brain tissue removed during topectomies and lobotomies in the Greystone project. It is hoped that the microscopic studies will shed light on the changes underlying the psychoses. These workers have also made an experimental study of various infections in pregnant animals with special reference to the effects upon the nervous systems of the offspring.

The program of Professor Dorothy H. Andersen on chronic malnutrition in infants and children, carried out with generous support of the Commonwealth Fund, has developed in a gratifying manner. Six papers have been published and several others are in process of preparation. It is a pleasure to report the well-earned recognition which came to Professor Andersen in the form of the Borden Award of the American Academy of Pediatrics.

It is gratifying that Professor Beryl Paige has recovered from a protracted period of illness and has contributed new studies on anomalies of the coronary arteries.

Professor Theodore F. Zucker and Drs. Benjamin N. Berg and Lois M. Zucker have made considerable progress in their research on nutritional lesions of the stomach and duodenum. They have found that adult rats, kept for a hundred days on a diet deficient in pantothenic acid, invariably show striking atrophy of the duodenal mucosa. In addition, 70 percent show duodenal ulcers, many of which penetrate the deeper layers, giving rise occasionally to perforation and peritonitis. It is not certain that these lesions are

analogous to the duodenal ulcer seen in man. Dietary deficiency of pantothenic acid must be rare in man; nevertheless, faulty mechanisms of intermediary metabolism may create disturbances in utilization of pantothenic acid.

These three investigators have also studied the role of calcium deficiency in causing gastric lesions in rats. Evidence indicates that cancer-producing compounds may act on the gastric mucosa only when a nutritional deficiency is already present.

Extensive work by Professor Theodore F. Zucker and Dr. Lois M. Zucker has also been carried out with respect to folic acid and vitamin B<sub>12</sub>, with special reference to the type of anemia produced. Data have been accumulated on the distribution of B<sub>12</sub> in plants and animals. It is evident that B<sub>12</sub> is not necessarily involved in the syntheses of desoxyribonucleic acids, for yeast and higher plants contain insignificant amounts of B<sub>12</sub>.

Work of Professor Zucker on gossypol shows that the inhibition of gastric emptying is of a different nature from that produced by enterogastrone.

Dr. Hans Kaunitz has expanded his program of research in vitamin E and has worked in close association with Dr. Charles Slanetz. Papers have been published on the work on implantation in vitamin E deficient rats and upon the estrogen response and pigmentation of the uterus in this type of deficiency. Work has also been carried out on production of ova and fertilization and on the production of gonadotropic hormone.

The mechanism of fat deposition in atherosclerosis has received further study under the direction of Professor Henry S. Simms. The "antilipfanogen" in blood plasma, which prevents the "lipfanogens" from being converted into visible fat, has received particular attention. Purification of antilipfanogen causes loss of stability and attempts are being made to find conditions favoring the stability of this agent. The antilipfanogen and lipfanogen content of serum from hospital patients has been studied in relation to blood cholesterol and other lipoids with the coöperation of Professor Kenneth B. Turner of the Department of Medicine. The effect of diet on the ratio of antilipfanogen to lipfanogen has been studied in diabetic and in normal dogs.

The relation of age to lesions in rats, under carefully controlled conditions, is being studied by Professor Simms with the aid of Dr. Jane Lester.

Julia T. Weld has engaged in a joint program of research with Professor Emeritus J. Gardner Hopkins of the Department of Dermatology. Repeated injections of organisms into the skin at ten-day intervals, produced inflammatory nodules, with formation of epithelial cysts. In the region of such cysts there was striking stimulation in growth of hair. Current studies are directed toward determining the mechanism responsible for the cyst formation and for the stimulation of hair growth.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN MCINTOSH, Executive Officer

Results of a nation-wide study of pediatric education, carried out under the auspices of the American Academy of Pediatrics, were released in the spring of 1949. The published tabulations naturally omitted mention of individual university departments by name but each department was furnished a confidential report indicating its relative position in the field as a whole. Although the survey was made at a time when the number of teaching hours assigned to pediatrics in Columbia was below the desired quota, the over-all rating placed this Department in the upper third of the country's schools.

Changes in the curriculum effective July, 1947, subsequent to completion of the survey, corrected the chief sources of criticism and further improved a situation already judged commendable. Prior to this the teaching hours assigned to pediatrics at Columbia were less than the average among the seventy medical schools of the country. With the institution of the twelve-month fourth-year curriculum the time devoted to pediatric teaching was brought well above the median for the medical schools of the country to the great benefit of the undergraduate students.

It cannot be denied that the revised curriculum imposes a considerable burden on the teaching staff over and above that necessary to fill the needs of patient care. This burden becomes particularly heavy during the summer months. In view of the results achieved, measured in both faculty and student reactions, the effort appears fully justified after two full years of operation. One measure of student competence is the quality of the papers submitted in competition for the William Perry Watson Prize. This year the standard of performance was unprecedentedly high. The prize was awarded to Alexander J. Povalski.

The residency training program has been supplemented this year by an arrangement for exchange residencies with Charity Hospital in New Orleans and with the Children's Hospital of Buffalo.

There have been nineteen publications from the Department.

Professor Hattie E. Alexander extended her studies on the mode of action of various antibiotics on pathogenic microorganisms. Intensive studies are being carried out in the chemotherapy of whooping cough, tuberculosis, infections caused by *Haemophilus influenzae*, and other bacterial diseases. These studies are being supported in part by grants from the Commonwealth Fund, the United States Public Health Service, and the National Institute of Health.

Professor Dorothy H. Andersen is continuing her studies in chronic nutritional disorders, in collaboration with Professor John M. Brush and Drs. Paul A. di Sant'Agnese and Paul E. Wilson. New links are being sought between celiac disease of childhood and adult sprue. These studies are supported by a grant from the Commonwealth Fund.

Professor Richard L. Day has made further progress in his study of the mechanisms involved in erythroblastosis fetalis, particularly those responsible for injury to the brain. Psychometric study of end results has shown the disease to be a more serious one than had first been believed. Professor Day received support from the John and Mary R. Markle Foundation and from the Blood Grouping Laboratory.

Dr. Sant'Agnese, in collaboration with the Research Department of Cutter Laboratories, made a number of valuable studies of the capacity of very young infants to respond to prophylactic procedures involved in immunization against bacterial infections. Dr. Ruth C. Harris adapted a number of tests of liver function for use in young patients and explored their possibilities in clinical diagnosis.

Professor Katharine K. Merritt's study of the effects of infections occurring during pregnancy on the integrity of the fetus have been assisted by the participation of Drs. Elinor F. Downs, Mary E. Hyman, and Janet K. Ross. In a biostatistical study, in which Miss Marjorie T. Bellows of the American Heart Association, Inc. participated, it was conclusively demonstrated for the first time that vaccination of pregnant women early in gestation carries no threat to the unborn child. Closely related to this research project is that of Dr. Bertram R. Girdany, a Fellow under a grant from the National Heart Institute, who is making a close study of the remote results of neonatal anoxia. All of these studies have been helped by grants from the Rockefeller Foundation and from the Life Insurance Medical Research Fund.

Dr. Conrad M. Riley has been investigating the pathogenic mechanisms underlying nephrosis and has explored a variety of therapeutic agents. Drs. William A. Silverman and William E. Homan collaborated in a comprehensive study of sepsis of the newborn as observed at the Medical Center over a period of years. Drs. James A. Wolff and John W. G. Tuthill extended their studies of leukemia and allied blood dyscrasias of infancy and childhood. Professor John Caffey's study of the effects of overdosage of vitamin A by a combined clinical and roentgenological attack has furnished objective proof of the risks attendant on the unsupervised exploitation of vitamin concentrates.

Signal honors have been conferred on some of the members of the Department in the past year. In addition to receiving The Borden Award of the American Academy of Pediatrics, Professor Andersen was invited to deliver a lecture before a special convocation of the Paediatric Section of the Royal Society of Medicine of London. She also addressed the Dutch Pediatric Society in Utrecht and the Medical School of the University of Amsterdam. Professor Donovan J. McCune, who accompanied the Unitarian Mission to Colombia, was elected Honorary Professor of the Medical Faculty of the National University of Colombia, Honorary Member of the Colombian Pediatric Society and of the Academy of Medicine of the City of Medellin, and was also granted the degree of Doctor of Science *honoris causa* of the Uni-

versity of Antioquia. Professor McIntosh was elected Chairman of the American Council on Rheumatic Fever.

The resignation of Dr. Elinor F. Downs was accepted with regret. She has accepted a position in the World Health Organization in Geneva, Switzerland. New appointments include those of Dr. David Stiles, Dr. Robert West, and Dr. James A. Wolff as Assistants, and of Dr. Paul S. Strong as Instructor. Dr. Arthur R. C. Cole has held the Koplik Children's Scholarship and Dr. Bertram Girdany a fellowship in pediatrics under the National Heart Act.

## DEPARTMENT OF PHARMACOLOGY

Professor HARRY B. VAN DYKE, Executive Officer

The required course for second-year medical students was further strengthened by the introduction of more elaborate experiments permitting extensive student participation. Demonstration experiments, sound motion pictures, and discussion periods were employed to the extent which seemed pedagogically desirable. Special lectures were given by members of other departments. Professors Virginia Apgar of the Department of Surgery and Edith H. Quimby of the Department of Radiology; Drs. Neal J. Conan, Jr. and Lillian Elveback of the School of Public Health; and Dr. John R. West of the Department of Medicine coöperated generously in the instruction of second-year students.

During the heavy period of instruction, the Department was fortunate in having the aid of Dr. Marthe Vogt of the University of Edinburgh. Dr. Vogt temporarily joined the staff as Visiting Associate Professor. Professor Alfred Gellhorn of the Department of Cancer Research participated continuously in the Department's instructional program. Professors Alfred Gilman and Gellhorn, together with Professor Hamilton Southworth and other members of the Department of Medicine, offered a revised course on applied pharmacology and therapeutics which continued even better to meet the needs of the fourth-year class. Professor Gilman directed the course for residents twice during the academic year and special emphasis was placed on recent advances in pharmacology of particular interest in therapeutics.

Work has continued, with the support of funds from the United States Public Health Service, on the renal excretion of electrolytes. This work is under the direction of Professor Gilman. Interest has centered on the mechanism of the renal excretion of potassium. Dr. Gilbert H. Mudge of the Department of Medicine, Dr. James G. Foulks, a fourth-year medical student, and Professor Gilman have demonstrated that potassium is actively secreted by the renal tubules. Furthermore, evidence indicates that most of the potassium of the glomerular filtrate is reabsorbed by the proximal tubule and that the homeostatic mechanisms which regulate the renal excretion of potassium

are largely dependent upon the secretory process. Dr. Foulks has been engaged in a study of the renal excretion of lithium.

Funds from the United States Public Health Service also supported a study of the metabolism of important hypnotic drugs, the barbiturates, and of certain anticonvulsant drugs by Dr. Everett W. Maynert and Professor van Dyke. The localization of barbital in the central nervous system was also under investigation. Dr. Maynert has isolated two important metabolic derivatives of pentobarbital. The heavy isotope of nitrogen,  $N^{15}$ , was employed to tag drug molecules in many experiments. This phase of the study was made possible by the generous aid of Professor David Rittenberg of the Department of Biochemistry who determined the isotope in the mass spectrometer.

Dr. Shih-yi P'an investigated certain relationships between the anterior pituitary gland and the ovaries or testes. In collaboration with Drs. Hans Kaunitz of the Department of Pathology and Charles A. Slanetz, he studied the effect of deficiency of vitamin E on the storage of gonadotropic hormone in the anterior pituitary. Dr. P'an also investigated the inactivation of a pituitary gonadotropic hormone by the liver which was found not to be important in the hormone's destruction. With Professor van Dyke he has continued purification studies of follicle-stimulating hormone. Much of the work was supported by a fund donated by E. R. Squibb and Sons for research in endocrinology.

Dr. Rose G Ames, in collaboration with Professors Dan H. Moore of the Department of Anatomy and van Dyke, investigated the excretion of the anti-diuretic hormone of the posterior pituitary which appeared in the urine as a protein-like substance.

John B. Hill carried out a further intensive search for insulin-substitutes among pure organic compounds. This investigation was supported for a second year by Eli Lilly and Company.

Professor Gilman has been appointed to the editorial board of the newly formed journal *Pharmacological Reviews*. For the first volume of the journal Dr. Maynert and Professor van Dyke reviewed the metabolism of the barbiturates. Professor Gilman, in collaboration with Dr. George B. Koelle of the Johns Hopkins University School of Medicine, has reviewed the anticholinesterase drugs.

## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

The shortage of trained physiologists in this country continues to be evident from the number and urgency of requests received and from the salaries and opportunities offered to graduate students immediately after receiving the doctorate degree. The shortage is in large part the result of inadequate oppor-

tunities for promising applicants to receive financial support during predoctoral training. In the long run reduction in funds for predoctoral training will prove to be false economy since it is largely from graduate students that future personnel for teaching must be recruited. In many respects graduate students serve the same function in a preclinical department as residents and interns in the clinical fields.

Dr. William L. Nastuk, who has been in charge of electrophysiological research and training, has been advanced to Assistant Professor. Dr. Herbert Borison was given a temporary leave of absence this Spring to help in the teaching at the University of South Dakota School of Medical Sciences. Dr. Monica Reynolds has resigned to accept a position as Associate in Physiology at the Veterinary College of the University of Pennsylvania where she will have opportunities not available here for physiological investigation on large animals. Dr. Enid Neidle will be Associate in Pharmacology at Jefferson Medical College of Philadelphia.

The teaching load of the Department is steadily increasing. For several years Columbia College and the School of General Studies have been urging expansion of teaching to include undergraduate students. Starting next autumn this course will be given by Professor Thomas H. Allen with the coöperation of other members of the staff. In addition the Department has agreed, next year, to teach a course in physiology to a group of forty students in physical therapy and another course for forty students in occupational therapy. Next year there will be a large number of students in both medicine and dentistry and the Department continues to give physiology to residents from affiliated hospitals and to contribute to graduate teaching in the Psychoanalytic Clinic for Training and Research. Several members of the staff are again undertaking the summer course in physiology under the direction of Professor Wilson C. Grant.

Dr. Nastuk spent the fall semester with Professor Alan Hodgkin at the physiological laboratory of Cambridge University in England investigating the electrical activity of single muscle fibres. During the last few months John W. Severinghaus, a fourth-year medical student working in Dr. Nastuk's laboratory, developed an improved all electronic type of electrophrenic respirator. Preliminary trials indicate that the instrument will have important clinical application.

Investigations with the ballistocardiographic technique for measuring cardiac output which are being conducted by Professor John L. Nickerson with the assistance of Dr. Thomas C. Fleming have expanded rapidly. Among the studies now in progress are a long-term investigation of digitalization, in collaboration with Drs. Robert Levy and James A. L. Mathers of the Department of Medicine; a study of pre- and postoperative conditions, with Dr. David V. Habif of the Department of Surgery; a study of cardiac abnormalities, both pre- and postoperatively, with Professor George H. Humphreys, II and Dr.

Ralph A. Deterling of the Department of Surgery; and a continuation of the study of the effects of psychiatric analysis on cardiac output, with Dr. Leon Moses of the Presbyterian Hospital. Professor Nickerson's research is receiving continued support from the United States Public Health Service.

Professor Shih-chun Wang and Dr. Herbert L. Borison, utilizing the Horsley-Clarke stereotaxic instrument, have attempted to localize the neural centers controlling emesis. They have obtained typical vomiting responses in decerebrate cats by stimulating small areas of the medulla and are now completing studies on a large series of chronic animals in which the vomiting center has been surgically eliminated.

Under the direction of Professors Wang and Walter S. Root, Dr. Enid A. Neidle completed an investigation of the effect of pilocarpine on the denervated iris of the cat.

Arthur Haut and Arthur Snyder, third-year medical students, this year completed the study of the effect of alloxan on glucose Tm which they undertook at the end of their first year in medical school and carried on quite independently.

During the summer of 1948 Professors Root and Gregersen conducted a teaching and research program in Nanking, China, for the American Bureau for Medical Aid to China. The results of these investigations concerned with the physiological characteristics of the Chinese were published in two papers in the Chinese *Journal of Physiology* which last fall resumed publication after a lapse of eight years. The investigations revealed interesting differences in blood volume and extracellular fluid compared to recent studies in New York. On analysis these could not be attributed to racial characteristics but seemed rather to be related to dietary and environmental factors.

During his stay in China Professor Root attended meetings of the Peiping Section of the Society for Experimental Biology and Medicine and lectured before the Shanghai Biochemical Society and the scientific staff of the National Defense Medical Center in Shanghai. Professor Gregersen visited more than twenty medical colleges including leading institutions in the extreme west and northwest of China where, as elsewhere in the country, medical education is expanding rapidly despite serious handicaps.

Professor Grant has continued the investigations of erythropoiesis which were started in collaboration with Professor Root. Professor Grant has been particularly interested in searching for the primary stimulus to erythropoiesis. At the present time Professor Grant is exploring the relation of the chemoreceptors to blood formation. He is also studying the influence of repeated artificial pneumothorax on hematocrit values and plasma volume and is collaborating with Dr. Louis Cizek on some effects of pneumothorax on the water balance.

Professor William W. Walcott, in coöperation with Professor Ingrith



Deyrup from the Department of Zoölogy at Barnard College, continued investigation and analysis of the effect on the cardiovascular system of intravenous injection of hypertonic salt solutions. Their observations cast considerable doubt on the validity of the method for measuring cardiac output which involves the injection of hypertonic solutions.

Drs. Marjorie B. Zucker and Cizek, and Douglas Tompkins, a third-year medical student, have completed a study of the renal function and internal fluid shifts in dogs subjected to plasmaphoresis. Dr. Zucker has investigated also the relation of blood platelets to edema formation in perfused tissues. Dr. Monica Reynolds has completed and submitted for publication a valuable report on the cardiovascular effects of injections of large volumes of saline after hemorrhage and carried out preliminary tests for a quantitative study of oxygen consumption in hemorrhage with the Scholander Respirometer which will be continued by Professor Walcott and Norman R. Alpert.

Professor Thomas H. Allen and Dr. Peter D. Orahovats have completed and published their work on the renal clearance of the dye T-1824. They are now engaged in further study of the affinity or energy of binding when the blue dye forms the T-1824-albumin compound. Their studies may explain how various dyes in the blood stream have different disappearance rates and may hold the key to a number of unsolved biological problems.

Professor Root and Frank Carpenter have begun studies on the nervous control of certain sexual functions in cats. This investigation is an outgrowth of earlier work done by Professor Root in collaboration with Professor Philip Bard of Johns Hopkins University School of Medicine. Professors Root, Nickerson, and Gregersen, in coöperation with Dr. Leon M. Sharpe of the Brookhaven National Laboratories, are still attempting to obtain decisive evidence as to whether or not the radioactive iron method of measuring blood volume and the carbonmonoxide method give comparable results.

Dr. Cizek has completed the studies on low salt balance and water metabolism which were begun in collaboration with Dr. Joseph H. Holmes, now Associate Professor of Medicine at the University of Colorado School of Medicine. Drs. Cizek and Nicholas A. diSalvo, a Fellow in dentistry, are studying the effect of intravenous salt injection on the composition of the salivary secretion. Drs. diSalvo and Hans Neumann have completed a number of preliminary tests on rats and monkeys and have obtained some indication that the specific gravity of teeth may be influenced by the physical consistency of the diet.

Dr. Cizek and Professor Gregersen are continuing investigations of the mechanism of thirst. During the past year they have confirmed in dogs the observations made on humans by Professors Holmes and Gregersen showing that thirst caused by intravenous injection of hypertonic solutions is accompanied by a marked reduction in salivary flow. Several papers concerned with

this group of investigations (interrupted during the war by the shock program) have now been published and further work is being planned with the assistance of Robert Semple.

The departmental seminars scheduled this year by Professor Wang have been of unusual interest by virtue of the inclusion of several outside speakers.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

The organized undergraduate, graduate, and postgraduate programs were carried out with increasing student loads in all categories at the New York State Psychiatric Institute and in the other divisions of the Department.

An additional course in human behavior was given to the first-year class of medical students. Dr. Walter Stewart presided at the first-year correlation clinics in physiology, illustrating emotional responses to physical stimuli. The teaching program at the Medical-Psychiatric Division continued to expand during the year. Teaching for the Department of Medicine was carried on mainly by Drs. Aaron Karush and Stewart, who were responsible for the course in psychiatry on the medical wards for the third-year clinical clerks on the medical service.

The teaching program for third-year clinical clerks this year was conducted so that each student spent one morning a week at the Department of Psychiatry of Vanderbilt Clinic and another morning at the New York State Psychiatric Institute. The new arrangement gives each student experience with both ambulatory and hospitalized psychiatric patients and a clearer understanding of the types and degrees of mental illness, as well as of the emotional component in all illnesses. This new arrangement necessitates more clinical material in each place and thus constitutes an added responsibility for the teaching staff.

The one-way mirror has been used with considerable success for undergraduate teaching and other conferences this year. Students ask to use it, either to watch the process of interviewing a patient by a psychiatrist, or to have their own interviewing observed and criticized.

Dr. Ruth Moulton again taught the course on psychiatry and psychosomatic medicine applied to dentistry to the postgraduate students of the Dental School. The course has led to her increased participation in the teaching program of the Dental School. She also prepared a set of psychosomatic history forms for use by the Division of Orthodontics. In conjunction with her dental teaching program, Dr. Moulton has supervised a research project on emotional factors in periodontal conditions.

Dr. Kenneth Kelley again taught two courses on psychosomatic medicine for the students in physical and occupational therapy. Dr. Stewart presented

lectures in this field to undergraduate nurses. In the absence of Professor George E. Daniels, guest lecturers conducted the course in psychosomatic medicine for second-year graduate students at the Psychoanalytic Clinic for Training and Research. Activities of the Medical-Psychiatric Division and the Psychosomatic Clinic have been handicapped during the past year by the absence of Professor Daniels. Dr. Kelley has been acting head of the inpatient service. Dr. Nathan Ackerman has been acting director of research and Dr. John A. P. Millet has supervised the Psychosomatic Clinic. Mary Newman has been untiring in her efforts to coördinate and facilitate the operation of these various activities.

Dr. B. Ruth Easser, a graduate student in the Psychoanalytic Clinic for Training and Research, joined the staff in September, 1948, and was assigned to the Department of Obstetrics and Gynecology where she has served in psychiatric consultations and conducted a psychiatric survey of patients suffering from hyperemesis gravidarum. Dr. Harold Lief, also a graduate student at the Psychoanalytic Clinic, will join the staff effective July 1, 1949, and will take part in the research and teaching program of the Department. Dr. Norman Rucker left the staff in January to take a teaching position at Tulane University of Louisiana School of Medicine.

Having reached the retirement age Dr. Augusta Scott's association with the Psychiatric Clinic was terminated in May. Her faithful devotion and cheerful, coöperative, and capable service was an immeasurable contribution to the Department of Psychiatry, to patients, and to students. It is with deep regret that the death last August of Dr. Henry Waterfield, who was a new member of the Department, is reported.

The consultation load from the medical and obstetrical wards has increased over the last year. One hundred and sixty-four consultations were answered by the staff with frequent follow-up treatment. Many of the cases referred for consultation were also used as material for teaching the third-year undergraduate medical students.

A total of fifty-one psychiatrists attended the Psychiatric Group and Psychosomatic Clinics of Vanderbilt Clinic during the academic year. Thirty-nine worked in the Psychiatric Clinic, eight in the Group Clinic, and six in the Psychosomatic Clinic where there were also seven postgraduate students from September to February and six others from March to the present. Nine of our staff have been volunteers. One psychologist with three assistants attended the Psychiatric Clinic. During the year 615 patients made 3,334 visits to this clinic; of these 368 were new patients.

Dr. Zygmunt Piotrowski and his assistants have continued their excellent coverage of our psychological testings attending our clinic four mornings a week. The eight psychiatric consultants in Group Clinic this year have continued eagerly this important teaching and treatment program.

Ninety-eight articles and books have been published by members of the staff during the year and ninety additional lectures and papers have been presented to scientific and medical groups. Many of these contributions will be published during the coming year.

The topectomy brain research, "psychosurgery," project, in coöperation with other departments of the University, has made a steady progress and promises to be the most complete investigation of its kind ever made. Metabolism of the brain in living animals has been studied by means of the new Geiger-Magnes blood perfusion method (Geiger-Magnes and Taylor). This method lends itself to many types of research on brain characteristics and functions.

Studies on lipid metabolism and glutamic acid metabolism of the central nervous system by Professors Warren Sperry, of the Department of Biochemistry, and Heinrich B. Waelsch will be extended in the future. The long-term studies in experimental epilepsy have been extended into new fields by Professor Nicholas Kopeloff.

Experimental allergic encephalomyelitis, one of the principal interests of the laboratories of neuropathology, constitutes a field in which basic research by Professor Armando Ferraro and Dr. Leon Roizin promises to reveal new therapeutic and preventive possibilities. Research in the field of medical genetics includes studies in geriatrics, schizophrenia, and affective psychoses. Several thousand sets of twins have been studied by Professor Franz J. Kallmann and assistants for a wide variety of constitutional factors and environmental influences. Clinical and physiological investigations of the effects of several varieties of shock therapy for mental disorders have been continued over the past ten years and are still a prime interest of the staff of the New York State Psychiatric Institute.

Research in the psychosomatic aspects of ulcerative colitis is not ready for final evaluation at this time but material is being prepared for presentation shortly. A major proportion of the patients treated psychiatrically, by either psychoanalysis or brief psychotherapy, have responded favorably. The Combined Ulcerative Colitis Clinic proposed last year was set up during the year to facilitate a team study of various problems by the Departments of Medicine, Surgery, and Psychiatry. Drs. Aaron Karush and Harold Lief have conducted the psychiatric investigation in the Clinic.

The hypertension project has followed three main lines during the past year. A preliminary study of a hypertensive subject by means of a combined psychological and physiological investigative technique has been conducted by Dr. Leon Moses. The predominant emotional concomitant effect of hypertension is anxiety and not rage and the psychodynamic problems seem to be similar to those found in classical anxiety hysteria. Data from the ballistocardiograph are highly consistent.

Dr. Nathan W. Ackerman has gathered additional data on the current

personality function of hypertensive patients as well as patients of other psychosomatic groups.

A preliminary survey of patients undergoing sympathectomy for hypertension is getting under way with the coöperation of the Department of Surgery. Dr. John J. Weber of the Department of Neurology and Dr. Charles C. Hogan, under the supervision of Dr. Ackerman, have formulated a program of psychiatric investigation for such surgical patients in an effort to determine whether there are personality changes after operation.

In the amenorrhea project Drs. Kenneth Kelley, John Poe, and B. Ruth Easser have conducted psychoanalytically-oriented psychotherapy on amenorrheic patients treated for from two to six months. Dr. Poe continued to interview amenorrheic patients in Sloane Endocrine Clinic. There is evidence of psychic confusion between gastrointestinal function and sexual function in these patients.

Dr. Irving B. Harrison has conducted a series of psychiatric interviews on patients with peptic ulcer as part of a pilot study supervised by Professor Charles Flood of the Department of Medicine.

The major problems of the Department are still the two-fold lack of funds for research and lack of space within which to operate. The lack of funds not only prevents purchase of equipment but has serious implications in the matter of professional personnel for it is almost impossible to obtain qualified research assistants who can afford to devote time to research without some sort of reimbursement or fellowship. Also the secretarial staff can provide only a limited coverage for research projects and this fact throws an additional burden on those conducting the research. As far as space is concerned, it is impossible for fifteen staff members, three secretaries, and a social worker to operate efficiently in one small room in the Medical School.

During the academic year the Psychoanalytic Clinic for Training and Research continued to expand its facilities in spite of increasing financial and space limitations.

Dr. Raymond De Saussure has been appointed to teach the course in Freud's works next year. Dr. Milton Sapirstein, who received his certificate from the Clinic two years ago, conducted the seminar on survey of literature for third-year clinic students.

In the basic sciences, two new courses were introduced. Professor Walter S. Root from the Department of Physiology inaugurated the course in physiology of the autonomic nervous system. Professor H. Houston Merritt and Dr. Clarence C. Hare organized a thirty-two hour course in clinical neurology for psychiatrists in which the outstanding specialists in the various branches of neurology talked to the first-year students about their specialties. Dr. Joseph Zubin took over the course in psychometrics formerly given by Dr. Edward Stainbrook, who is now at Yale University School of Medicine.

The basic-science courses are now required of first-year students with ex-

aminations given at the end of the term in each subject. Thus the basic sciences have been completely integrated with the training in psychoanalytic medicine.

Eleven teachers were added to the regular and collaborating staffs, bringing to twenty-nine the total teaching personnel.

The Children's Service was closely coordinated with the Psychiatric Institute through the use of patients from the Institute and intimate cooperation from residents of the Institute who are on that Service. Next year it is planned to have an additional staff member to assist Dr. David Levy with the teaching and supervision of the children's work.

Four new doctors were added to the staff doing individual supervision of students treating reconstructive cases this year. This brings to twelve the number of supervising analysts on the Clinic staff.

Hospital affiliations were increased this year with the participation of residents in the Long Island College Hospital training program and the Bronx Veterans Hospital program.

Last June seven members of the first regular class at the Clinic received their Certificates of Training in Psychoanalytic Medicine during a brief ceremony at which Dr. John B. Truslow delivered the address in the presence of Professor Lewis and members of the staff. One of these graduates is teaching at Tulane University of Louisiana School of Medicine; another expects to join the staff at Louisiana State University School of Medicine this year. The other five received appointments as assistant psychoanalysts at the Clinic.

There are fifteen in the class which is to receive certificates in October, 1949. Two of these students came to the Clinic with advance credit and already have important positions—one as head of the newly organized Department of Psychiatry at Tulane University of Louisiana School of Medicine and the other as head of the Department of Psychiatry at the University of Washington School of Medicine in Seattle. A third one will be head of the Department of Child Psychiatry and Assistant Professor of Psychiatry and Pediatrics at the University of Pennsylvania School of Medicine.

Present indications are that there will be forty-seven students at the Clinic this coming year. The outstanding problems in this area remain—insufficient residency and fellowship stipends, and the inadequate number of personal analysts.

It is essential that more money be made available to the Clinic if present standards are to be maintained and the research program is to be carried out. If the Clinic hopes to keep the services of outstanding teachers and supervisors, money must be available to pay them, particularly as many other training centers founded on the Columbia pattern are now arising and competing for these people.

## SCHOOL OF PUBLIC HEALTH

Professor HAROLD W. BROWN, Acting Associate Dean and Director

Dr. Harry S. Mustard, Professor of Public Health Practice and Director of the School, has continued to be on leave of absence, serving as Commissioner of Health of the City of New York.

The student body of the School numbered 146 and included students from thirteen foreign countries. Important changes have been effected in the teaching of public health education and epidemiology. The program in public health education has been considerably expanded and Dr. Llewellyn E. Kling has been appointed Associate Professor of Public Health Education and head of this division. During the academic year Dr. John P. Fox was assigned to the School from the International Health Division of the Rockefeller Foundation. He has instituted a course in virus diseases in the Division of Epidemiology. A new course, *Topics in Public Health*, was given this year affording the student body an opportunity to hear a number of eminent men discuss their specialties in the field of public health.

The Division of Hospital Administration is now in its fourth year. The fifty-six graduates in this field are scattered throughout the United States, Canada, Puerto Rico, and Guatemala in important positions—medical directors, nine; administrators, eleven; associate medical directors, one; assistant medical directors, five; assistant administrators, twenty-one; administrative assistants, six; health officers, two; manager of group clinic, one; research associate in hospital administration, one. Eighteen students are completing their administrative residencies this year. Of the present class of twenty-six all are continuing their training for the second year and expect to qualify for the Master of Science degree in hospital administration in 1950. To date a total of 101 students, of which twenty-five are physicians, have completed the academic year in hospital administration.

In the Division of Epidemiology Professor E. Gurney Clark and his associates have continued the epidemiological and clinical study of reinfection and relapse among patients with early syphilis treated with penicillin. This study is supported by funds from the United States Public Health Service. Professor Louis D. Zeidberg, in collaboration with the Tropical Disease Laboratory of the New York City Department of Health, has been studying the incidence and prevalence of amebiasis among the students of the School of Public Health. Dr. Fox has been active this past year in research in the field of viruses and rickettsiae.

In the Division of Industrial Hygiene, Professor Leonard J. Goldwater and Dr. Maurice E. Shils have continued their studies on the relationship of nutritional factors to industrial poisoning. This work has been supported by

grants from the United States Army and the United States Public Health Service and the National Vitamin Foundation. Professor Goldwater and his coworkers have also continued their studies on the epidemiology and the clinical manifestations of beryllium poisoning and have completed for the United States Atomic Energy Commission a report entitled "Medical Control of Beryllium Poisoning." They have also made medical and environmental studies on a group of workers exposed to mercury compounds.

In the Division of Parasitology Professor Harold W. Brown and Dr. Kathleen L. Hussey have continued their studies on the chemotherapy of amebiasis. Through a coöperative program with the Abbott Research Laboratories, Eli Lilly and Company, Sharp and Dohme, Inc., and the Upjohn Company, a large number of new drugs are supplied for testing. These researches are directed towards the finding of a more effective chemotherapeutic agent against amebiasis than is now available. Professors Brown and Roger W. Williams completed their study on the control of filariasis by means of DDT spraying of houses on the island of St. Croix, Virgin Islands. This joint study with the United States Public Health Service was partially supported by the John and Mary R. Markle Foundation. They have also continued their study on the chemotherapy of filariasis.

In the Division of Sanitary Science Professor John M. Henderson began a study of the bionomics of the anopheles mosquitoes transmitting malaria in Puerto Rico. John W. H. Rehn is in residence in Puerto Rico in charge of these studies which are supported by the United States Public Health Service. Professor Charles C. Spencer is studying the relationship of dust and bacteria in the air in hospital wards and clinics.

Professor John W. Fertig and Isabel McCaffrey have continued to give statistical advice to the various departments of the medical faculty in planning projects and in analyzing the results of such projects. Professor Fertig was Visiting Professor of Biostatistics during the summer of 1948 at the School of Tropical Medicine in Puerto Rico and at the University of Minnesota Medical School during the spring quarter of 1949.

Professor Clark served as Consultant to the University of Oslo syphilis project and also visited various public health centers in Europe on a traveling fellowship from the Rockefeller Foundation. He continues to serve as a Special Consultant to the Venereal Disease Division of the United States Public Health Service.

Professor Goldwater has continued his coöperation with the cardiac rehabilitation clinic at Bellevue Hospital. He served as Commonwealth Fund Visiting Professor at the University of Louisville for a brief period in the spring quarter.

Professor Brown served as a Consultant to the Communicable Disease Center of the United States Public Health Service and in this capacity visited



St. Croix in connection with the filariasis control program. Dr. Williams served as Entomological Consultant to the United States Public Health Service in Alaska during the summer.

Professors Kling and Fertig are serving as medical and statistical consultants to the North Carolina and Alabama demonstration study on maternal health sponsored by the Planned Parenthood Federation of America.

Professor James L. Troupin was a public health consultant to the Commonwealth Fund's Institute on Mental Health. He also served as a staff member of the Medical Services Committee of the Hoover Commission on the organization of the executive branch of government.

Professor Henderson served as a temporary consultant to the World Health Organization and spent some time in India consulting on malaria control. He was also a visiting professor in the School of Tropical Medicine in Puerto Rico.

## DEPARTMENT OF RADIOLOGY

Professor Ross GOLDEN, Executive Officer

Drs. Walter T. Hileman and Louis A. Rottenberg, on the completion of their residency training were appointed Instructor and Assistant, respectively. Dr. Ida A. Sterman who was an Instructor for four years resigned on June 1.

In addition to the regular residents, the Department accepted Lieutenant Colonel Harry L. Berman for a period of three years as a trainee for the United States Army. He acts at the same time as Commanding Officer of the Reserve Officers Training Corps of the College of Physicians and Surgeons. During the year there were five visiting scholars—Dr. Andre Gernez from France, Dr. Robert N. Cooley from Johns Hopkins University School of Medicine, Dr. Lloyd S. Green from Canada, Dr. Adnan Budaras from Turkey, and Dr. Murray D. Shepp.

Professor Robert P. Ball has accepted an invitation to become Radiologist-in-Chief at the New York Hospital and Professor of Radiology at the Cornell University Medical College beginning September 1, 1949. It is with great regret that we accept his resignation. Professor Ball made a trip to Panama Canal Zone as Consultant in Radiology to the Armed Services and presented a paper at the meeting of the Southern Conference on Hospital Planning at Biloxi, Mississippi.

Professor Harold W. Jacox presented several papers at various scientific society meetings and published others, among them papers on complications following irradiation of the pelvis, roentgen therapy in arthritis, thrombocytopenic purpura following therapeutic administration of radioactive sodium, some experiences in the medical uses of radioactive isotopes, action of

radiation on living cells, radiotherapy of intracranial tumors, and the value and limitations of radiation therapy. In addition, Professor Jacox has been abstracting radiological articles for *Excerpta Medica* and serves on the publication committee for *Radiology*. He and Professor George F. Cahill of the Department of Urology are preparing a chapter on the "Treatment of Diseases of the Kidney and Adrenal Glands" for *Therapeutic Radiology*, to be published by Thomas Nelson and Sons.

Professor Ernest H. Wood prepared an atlas on myelography which was published by the Army Institute of Pathology in Washington and also published an article on the diagnosis of spinal meningiomas and schwannomas by myelography. He delivered the principal address on myelography to the Radiological Section of the Connecticut State Medical Society. Professor Wood continues to give the postgraduate series of ten lectures to neurologists and psychiatrists.

In October Professor Lois C. Collins and Dr. Vincent P. Collins were appointed Consultant Radiologists to the United States Marine Hospital on Staten Island under the auspices of the United States Public Health Service. Dr. Vincent Collins presented a paper at the meeting of the American Roentgen Ray Society in September on bone involvement in cryptococcosis and attended a meeting of the Subcommittee on Sterioids and Cancer of the Therapeutic Trails Committee of the Council on Pharmacy and Chemistry to obtain information in preparation for setting up a clinic for handling cases of advanced carcinoma of the breast.

Dr. Josephine S. Wells published a paper on the mucosal pattern of the terminal ileum in children.

In the Radiotherapy Department a hormone therapy clinic was set up in association with the Tumor Chemotherapy Clinic for the investigation and application of estrogen and androgen therapy in the management of advanced carcinoma of the breast. This clinic is run by the Radiotherapy Department with the coöperation of the Departments of Surgery, Medicine, Obstetrics and Gynecology, Cancer Research, and with psychiatric and dental consultations. An investigation has also been started to clarify the apparently high incidence of Hodgkin's disease in cryptococcosis. Five cases of Hodgkin's have been investigated mycologically, and one instance of unsuspected cryptococcosis has been revealed. Continuation of this investigation in collaboration with Professors Alfred Gellhorn of the Department of Cancer Research and Rhoda W. Benham of the Department of Dermatology is planned and a grant has been requested in this connection.

Also in the Radiotherapy Department a drafting and treatment planning room has been equipped where assigned residents carry out the duties of a hospital physicist under the direction of Professor Edith H. Quimby. Studies on the improvement of radiation dosage are being carried out using water,

rice, and plastic bolus materials. With the coöperation of Dr. Oscar E. Beder of the Department of Dental and Oral Surgery, the use of acrylic molds is being extended in the use of radium for treatment of lesions of mouth and antra.

The work of the Radiological Research Laboratory has continued along the lines described in previous reports. The research project for the Atomic Energy Commission, which is still subject to security regulations, has been continued and also the problems allied with therapeutic radiology and with medical uses of radioactive isotopes.

Professor Gioacchino Failla's work has been largely in connection with the Atomic Energy Commission and other government agencies, both civilian and military, on problems relating to atomic energy. In June, 1949, Professor Failla received the honorary degree of Doctor of Science from the University of Rochester.

Professor Quimby has continued her coöperative research problems with various members of the clinical staff using artificial radioactive elements. The work with Dr. Sidney C. Werner of the Department of Medicine in the use of radioactive iodine in diagnosis of thyroid disorders and in treatment of toxic goiter has been carried on with encouraging results. Frequent requests have been received from other staff members for consultation on thyroid problems. With Professor Virginia K. Frantz of the Department of Surgery and all the surgeons interested in thyroid cancer a program has been carried out of making autoradiographic studies of tissue from every patient operated on for known or suspected thyroid cancer and for a considerable number with nontoxic nodular goiter. With Dr. Edward B. Schlesinger of the Department of Neurology a program has been planned for investigating the use of dyes labeled with radioisotopes in the localization of brain tumors. With Professor Earl T. Engle of the Department of Anatomy and Dr. John Geary, a Fellow of the Atomic Energy Commission, a study was made of the distribution of radioactive iodine in various organs and tissues in monkeys. The radioactive phosphorus for Professor Jacox's therapeutic work has been received and standardized in the laboratory. Professor Quimby has continued to serve as examiner for the American Board of Radiology and is consultant for the American Medical Association and for the Veterans Administration. In May, 1949, she was given an American Design Award by Lord and Taylor for her work with radioactive isotopes.

Professors Failla and Quimby have collaborated with other interested staff members to promote the establishment of a course in biophysics in Columbia University leading to the degree of Doctor of Philosophy. This has now been formally accomplished, the Joint Committee on Graduate Instruction having designated the subcommittee on biophysics to plan and supervise this work of which Professors Failla and Quimby are members. Several students are al-

ready enrolled and are pursuing courses in the academic departments. Some of these plan to do the experimental work for their theses in the Radiological Research Laboratory.

A program has also been instituted whereby the Fellows in radiology devote one month of their final year to work in the Radiological Research Laboratory with the special purpose of obtaining some familiarity with radioactive isotope procedures.

Through funds provided largely by the Atomic Energy Commission the work of the Laboratory has greatly expanded during the last two years and additional space is urgently needed. Fortunately, the proposed addition to the Medical School will soon remedy the situation by providing one floor for the new Radiological Research Laboratories. This will make it possible to take care of the students mentioned above and also students to be trained in health physics for the Atomic Energy Commission.

The Department is happy to announce the addition to its staff of Professor Roberts Rugh who has commenced a program of research on the biological effects of radiation.

Professor Golden, who has been serving the Veterans Administration as Branch Section Chief in Radiology for New York State and New England, was appointed a member of the Advisory Council for New York State. He was also elected an honorary member of the Pennsylvania Radiological Society and Chairman of the American delegation to the Sixth International Congress of Radiology to be held in London in 1950. He was appointed a member of the Committee on International Affairs of the American College of Radiology and Consultant in Roentgenology for the New Rochelle Hospital. He attended several national scientific society meetings and presented papers on carcinoma of the stomach, on the effect of diseases of the mesentery on the small intestine, on the indications for special x-ray examination of the small intestine, and on a study of spontaneous pneumothorax, the latter with Dr. Louis A. Rottenberg. He gave instructional and refresher courses at two of these meetings, acted as Chairman for the Graduate Fortnight of the New York Academy of Medicine in October, participated in two examinations of candidates for the diploma of the American Board of Radiology and took part in a film-reading session at a meeting of the Medical Society of the State of New York.

## DEPARTMENT OF SURGERY

PROFESSOR GEORGE H. HUMPHREYS, II, Executive Officer

The reorganization of the Department of Surgery which followed the post-war retirement of many of its older leaders is now for the most part completed, and steady progress is being made in a program of increasing effectiveness.

The surgical teaching staff in Presbyterian, Babies, and Bellevue hospitals has been coordinated through an expansion of the system of rotation of its members through these institutions, which makes it possible to use more fully the great variety of clinical teaching material in each and to bring the staff members more closely together. At the same time an increasing opportunity is being created not only for greater productivity at home but also for contributions on a larger scale, both in this country and abroad, to the interchange of scientific knowledge.

On July 1, 1948, Dr. Louis M. Rousselot resigned to become Professor of Clinical Surgery at New York University College of Medicine and Director of Surgery at St. Vincent's Hospital. On the same date Dr. William L. Lehman left to become Director of Pathology at the Good Samaritan Hospital in Portland, Oregon. On January 1, 1949, Dr. John Crawford returned to Vanderbilt University School of Medicine in Nashville, Tennessee.

At Bellevue Hospital Professor J. Gordon Lee resigned on July 1 to become Associate Professor of Surgery at Georgetown University School of Medicine and George Washington University School of Medicine and Chief of the Surgical Service at Mount Alto Veterans Hospital in Washington, D. C. Dr. Walter Fischer resigned from the Columbia Division to accept a position as Instructor in Surgery at New York University Postgraduate Medical School. Three new appointments were made to the surgical teaching staff at the Medical Center and two were made on the Columbia Division of Bellevue Hospital. Dr. Raffaele Lattes was appointed on August 1 as Assistant Professor of Surgical Pathology. On July 1, Dr. Ferdinand McAllister and on January 1, Dr. Milton R Porter were appointed Instructors. At Bellevue Hospital, Dr. Charles Beakes was appointed an Instructor and Dr. Paul Kirschner was appointed an Assistant. All of these men had recently completed their residency training and represent a continued trend to advance promising graduates of our training program as replacements for staff members accepting advanced positions elsewhere.

In anesthesia, Drs. Mary Ward, Beatrice Selvin, Thomas McDermott, Alfred Safian, and Robert Fontes joined the staff during the year, further building the staff of this service toward a truly academic level. As yet clinical requirements are so heavy that opportunity has not been extended beyond clinical teaching. It is hoped that with the addition of still further staff more research in anesthesia will become possible.

The year was not marked by any radical changes in the activities of the laboratory of surgical pathology. During the year the study of exfoliative cytological specimens by the surgical pathology residents has made great progress under the supervision of Professor Lattes and has attained a gratifying degree of accuracy. Professor Lattes is also doing this work for the City's Kips Bay Cancer Detection and Prevention Clinic which has afforded him an opportunity to gain a wide experience in all aspects of the technique. The

residents have also been able to handle most of the quick frozen section and biopsy diagnoses without the aid of the permanent laboratory staff who are called upon only for consultative advice.

In addition to the regular undergraduate teaching of the second- and third-year classes, forty-four graduate and three undergraduate students worked in the laboratory for varying lengths of time from three to twelve months. Eleven of these students came from other countries. Two came from Canada and China, one each from India, the Philippines, Brazil, Colombia, Iceland, England, and Siam. Two of the three surgical pathology residents, Drs. Philip T. Flynn and Saul Kay, were trainees of the National Cancer Institute and two other trainees of the same Institute also worked part-time in the laboratory during the year. Numerous other graduate students have attended the surgical pathology conferences, sessions of the Neoplasm Clinic, and have in other ways used the laboratory facilities.

Extramural teaching activities have been carried out on a much greater scale than ever before. Tumor seminars were conducted by Professor Arthur P. Stout in Columbia, Missouri and Los Angeles, Milwaukee, Indianapolis, and Philadelphia. He also participated in cancer teaching programs at three hospitals in New York and nine outside institutions and conducted tumor clinics twice each month at the Halloran General Hospital on Staten Island.

During the past year Professor Virginia K. Frantz has been president of the New York Pathological Society and has served as a member of the Committee on Legislation of the County Medical Society and a member of the Committee on Library of the New York Academy of Medicine. In collaboration with Professor Edith H. Quimby of the Department of Radiology and Dr. Sidney C. Werner of the Department of Medicine, she prepared an exhibit, "Radioactive Iodine in the Treatment and Diagnosis of Thyroid Diseases," for the meeting of the American Medical Association which won honorable mention. She was a member of the panel on head and neck neoplasms at the National Cancer Conference in Memphis. Both Professors Frantz and Stout have been invited to write fascicles for the projected *Atlas of Tumors* which is sponsored by the National Research Council, and Professor Stout is a member of the Subcommittee on Oncology which is in charge of this undertaking.

The permanent staff of the laboratory continues to be consulted by a very large number of pathologists and others, in this country and abroad, concerning diagnostic problems. The slides, histories, and copies of the reports sent out are kept on file in the laboratory and this has served to build up a large collection of material which is constantly used by the graduates working in the laboratory.

The Tissue Culture Laboratory, under the direction of Professor Margaret R. Murray, has been continuing a double project supported by the American Cancer Society dealing with normal muscle and nerve cells *in vitro*. As much assistance as was possible was given to Professor Arthur H. Blakemore's

project dealing with the viability of vascular grafts stored for various lengths of time under various conditions since the ability of the graft to grow in tissue culture affords the most rigorous test of viability. In collaboration with Professor Erwin H. Chargaff of the Department of Biochemistry, mammalian cells are being used in a study of the inhibition by meso-inositol of the mitotic poisons, colchicine and gammexane.

The Tissue Culture Commission is sponsoring the compilation of a comprehensive bibliography of the published works in tissue culture and the project is being carried on here under the direction of Professor Murray. This bibliography comprising some fifteen thousand titles is now being assembled, checked, classified and cross-indexed by a research librarian in consultation with investigators in various areas of the field of tissue culture. To date it has been subsidized by the American Cancer Society, Eli Lilly and Company, and the Lederle Laboratories. Over thirty doctors have visited Professor Murray to consult her in relation to tissue culture research. Of these, eleven have come from the Continent, Turkey, India, South America, Australia, and New Zealand.

The laboratories of surgical research have been increasingly productive. In the surgical metabolism unit the work has continued to focus on physiological disturbances incident to surgical operations, with particular reference to the maintenance of nitrogen equilibrium and the possible influence of various inorganic ions, particularly potassium and phosphate on nitrogen balance. Recently studies have been undertaken on patients with severe liver insufficiency with particular view toward meeting their special nutritional and metabolic requirements.

Several other projects revolve around the metabolic study program. Of special note is the work on potassium requirements of surgical patients which has been carried on largely under the leadership of Dr. Henry T. Randall. The practical application of this research has already lead to the virtual disappearance of potassium deficiency states on this service. The work was reported by Dr. Randall at the Society of University Surgeons and has attracted much interest and favorable comment.

Drs. David V. Habib and Robert O'Malley, in collaboration with Professor Stanley E. Bradley of the Department of Medicine and Professor John L. Nickerson of the Department of Physiology, have been studying the influence of anesthesia and operation on renal, kidney, and cardiac functions, and with the physiology of body water. Eighteen months of operation of the surgical metabolism unit have amply justified the installation of this facility and much credit goes to Dr. Habib and the technical and nursing staff for the excellent accomplishments made thus far.

Professor Blakemore has carried on extensive clinical research on the use of the techniques he has designed for the relief of portal hypertension. Archibald I. S. Macpherson, a visiting Rockefeller Fellow from the University of

Edinburgh, has worked with Professor Blakemore both on clinical problems and on laboratory investigations of portal hypertension. Professor Ralph A. Deterling has investigated the use of arterial grafts in the performance of shunts between the heart and great vessels. These individuals have also collaborated in a study of techniques of blood vessel preservation with a view toward making feasible the establishment of a "blood vessel bank." Dr. Thomas J. Bridges, Jr. is working with Professor Deterling in a study of the influence of central nervous system mechanisms in hypertension.

Professor John S. Lockwood is continuing studies on variations and levels of plasma protease inhibitor factors. Special interest has been paid to changes in the factors in patients with cancer and peritonitis. In addition he continues to guide the work of the resident staff in the laboratory where Dr. O'Malley has collaborated with Professor Edmund P. Fowler, Jr. of the Department of Otolaryngology in preliminary work on blood sludging, and Drs. J. Roy Smith and Herbert Volk are applying the techniques of electromyography to the study of small intestinal physiology.

Continuing work already begun, Dr. Edmund N. Goodman, with Dr. Irvin A. Ginsberg, has developed a refined technique of determination of electric potentials in gastric mucosa which may supply more consistently reproducible results than those formerly employed. Dr. John F. Prudden has carried further the work on the role of lysozyme begun with Dr. William Lehman and Professor Karl Meyer of the Department of Medicine. Professor Frank L. Meleney has continued to work with Balbina Johnson on the clinical uses of bacitracin and has completed the studies on standardization of the material for which his grant from the United States Army terminated on January 1. Work on the clinical effects of the drug as well as its chemistry will be continued on special funds, the latter with the collaboration of the Department of Biochemistry.

Professor Cushman D. Haagensen has been designated as Coördinator of Cancer Teaching and Chairman of the Coördinating Committee of the Institute of Cancer Research. He has continued his studies of the milk factor in mammary carcinoma. Work has been largely concentrated on production of sufficient quantities of the virus-like factor to enable immunological studies to be carried out by Professor Michael Heidelberger of the Department of Medicine.

During the year Professor Edward L. Howes has worked on two projects, one on gastric cancer and the second on wound healing. In the first, the capacity of the mucus cell to survive injury and to proliferate is being investigated. In the second, the effect on fibroplasia with alterations in metabolic processes and the influence of various antibiotics and stimulating substances on epithelialization are being studied. These projects are financed by grants from the United States Public Health Service and the United States Army, respectively.



Dr. Robert S. Grinnell has completed an interesting study on the distributions of lymph node metastases in patients with cancer of the large intestine. As a result, it will be possible to design more radical operations better able to cure patients with this disease. Dr. Robert B. Hiatt has continued to study the basic mechanisms involved in congenital megacolon in infants and children and on the basis of his research has designed a new operative procedure which is being performed with notable success. A color motion picture of this procedure has been completed.

The use of radioactive iodine in the diagnosis and treatment of thyroid diseases is under study by groups representing the Department of Medicine, Surgery, and Radiology. Professors Frantz and William B. Parsons represent the Department of Surgery in this project and the related pathological studies are being carried out in the laboratory of surgical pathology. The most promising development in this project concerns the use of radioactive iodine in the treatment of metastatic cancer of the thyroid gland.

It is gratifying to observe the work of the senior assistant residents assigned to research projects during the last half of their fourth year of service. They have profited greatly by this opportunity to engage in creative scientific work and several noteworthy contributions have been made through their efforts. The work on blood transfusions, through the development of an apparatus designed to introduce blood at a rapid and controlled rate either by artery or by vein, has saved a number of lives and is already reflecting reduced operative mortality rates for major surgical procedures. Topical antibiotic therapy of soft-tissue infections has now become a standard practice in our clinics and on the wards. Reference has already been made to the investigation of potassium deficits in surgical patients and to the work on blood sludging. In each of these projects the major effort has been made by members of the resident staff. Furthermore, it is gratifying to see how promptly the results of research of this type can be applied in our routine surgical practice with immediate benefit to our patients. These gains are dramatically indicated by latest analyses of the recent record in gastric surgery made by Professor Harold D. Harvey and Dr. Milton R. Porter. Since June, 1946 more than 250 patients have been subjected to elective gastrectomy for benign peptic ulcer without a single postoperative death in this group. During 1948 fifteen patients were subjected to emergency gastrectomy for major hemorrhage with only one death, and that from a cause not directly related to the operation. This record has been made possible through the efforts of a well-trained resident staff constantly stimulated and encouraged to apply in their work the basic principles of preclinical sciences including physiology, biochemistry, bacteriology, and pharmacology. Improvement in team work with the Department of Medicine has also played a significant part in these developments.

Over seventy meetings outside of New York City were attended by members of the staff during the year. In addition, four staff members made

extensive visits to foreign countries. In April, May, and June Professor Howes took part in a Unitarian Medical Mission to Greece and Italy. Professor Frantz took advantage of her sabbatical leave to visit England and travel extensively on the Continent, visiting many clinics and receiving invitations to speak on the research she has been conducting here. On August 11 Professor Jerome P. Webster left on a six-month leave of absence to conduct a course in plastic surgery in Shanghai under the joint auspices of the Chinese Ministry of Education and the American Bureau for Medical Aid to China. Due to the increasingly difficult political situation, Professor Webster found it expedient to return earlier than planned, traveling westward around the world, giving lectures in Manila, Beirut, and London, as well as in six Chinese cities. In October and November Professor Humphreys acted as Chairman of the first Unitarian Medical Mission to visit South America. Though the activities of the Mission were confined to Colombia, it was possible to pay a short visit to Caracas, Venezuela where a small but active group of doctors trained at Columbia University are working.

Twenty-one members of the staff have published sixty-two papers on clinical and experimental subjects. Professor Meleney's book, *Treatise on Surgical Infections*, published in June, 1948 was followed by a second book, *Clinical Aspects and Treatment of Surgical Infections* in January, 1949.

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

There has been a readjustment of the undergraduate curriculum in the Department to make up for the contracted schedule that is to take effect at the beginning of the new semester.

The program of graduate education has been changed somewhat to conform with the new procedures in the work progress for the higher degrees. There has been no abatement of the assignment of problems for investigation to each of the residents as in the previous course in residency training.

This phase of the resident experience has produced most gratifying results. Dr. George F. Barrett presented a paper on his work done under Professor Alexander B. Gutman of the Department of Medicine especially on the clinical side of the metabolic aspects of the prevention of renal calculi. Dr. Robert F. Gehres presented his thesis on the chemical solution of urinary stones and was awarded the Joseph Mather Smith Prize by Columbia University. Dr. Chauncey R. Southworth has continued his interest in the problem of prostatic carcinoma as has Dr. Robert Kollmar with a study of the progressive results and end results of the hormonal therapy carried out in the Department. Dr. Charles Lynch reported on his final studies in ureteral ectopia in a paper to

the New York State Medical Society. These residency investigations have been aided by the Albert and Mary Lasker Foundation.

Professor George W. Fish reported on his studies on excessive dilation of the urinary bladder. Professor John N. Robinson was active in the work on sterility and human reproduction up to the time of his illness which has necessitated an extended leave of absence. Professor Charles T. Hazzard has assumed this activity.

Dr. Meyer M. Melicow has continued his investigations into testicular tumors, adrenal pathology, and other urological pathology with reports upon the same.

Dr. John K. Lattimer has continued his clinical research into the treatment of genitourinary tuberculosis with streptomycin and para-aminosalicylic acid, working with the Veterans Administration, and reported upon the early phases of the investigation. Dr. Lattimer also participated in the annual meeting of the National Tuberculosis Association and the Veterans Administration streptomycin conference. The Residents Journal Club meetings were continued under his sponsorship.

Dr. Harry Seneca has carried on his investigations into infections of the urinary tract. His work upon unabsorbable sulfonamides has produced excellent results in the sterilization of the intestinal tract for urinary intestinal surgery. A large number of investigations are continuing in infusions in bacterial and protozoal cultures and in possible cell culture transfusions.

Professor George F. Cahill has continued his interest in various problems of the adrenal with various members of the medical as well as the urological staff.

The staff has been active in reporting and speaking before various medical societies and also has continued its participation in the Veterans Administration.

## MEDICAL LIBRARY<sup>1</sup>

Professor THOMAS P. FLEMING, Medical Librarian

The post of Medical Librarian was filled by the appointment of Professor Thomas P. Fleming, formerly Assistant Director of the University Libraries, 1944-1948, and Medical Librarian, 1937-1944. In addition to directing the activities of the Medical and Biological Libraries of the University, Professor Fleming teaches courses in scientific bibliography at the School of Library Service.

Estelle Brodman, Assistant Librarian, was given a leave of absence to complete her work for the doctorate and to accept a teaching fellowship at the

<sup>1</sup> For a complete résumé see the *Report of the Director of Libraries*, Columbia University.

School of Library Service. During the year she taught courses in general bibliography and conducted an intensive training course sponsored jointly by the Veterans Administration and Columbia University for twenty-nine in-service librarians. Miss Brodman continued to serve as editor of the *Bulletin of the Medical Library Association*.

Mrs. Emilienne Stordeur Lopat, Diplômé de Bibliothéconomie, Ecole Centrale de Service Social, Brussels, Belgium, was appointed Reference Assistant. Her previous training in Europe has made it possible to render unusual service to the increasing number of foreign Fellows at the Medical Center.

The Rockefeller Foundation, through its grants-in-aid, made it possible for three foreign medical librarians to come to the United States for a year to study and observe American medical librarianship. They were Lydia Pazos Peres, Librarian of the Facultad de Medicina, Universidad de Habana, Cuba; Alicia Izquierdo from the Biblioteca de la Universidad de Chile, Santiago, Chile; and Marie Louise Vibourelle of the Ministre de la Sante Publique, Paris, France.

Librarians from nine foreign countries were among the numerous visitors who came to observe the Library's services, particularly, the bibliographic procedures which have attracted world-wide attention. During the year this service issued approximately 11,500 references to the literature on 122 subjects for seventy-eight investigators from twenty-one departments. Extensive bibliographical work is being made available to the medical research world through the series, *Medical Bibliographies*. To the published series this year were added number seventeen, "Buerger's Disease" and number eighteen, "The Common Cold."

Cold statistics seldom reveal either quantitatively or qualitatively the amount of service performed in a library. A report that more than 150,000 volumes were used during the year, means little to those outside the library field. Assuming that the size of the average book in the library is two inches thick, these statistics may be interpreted dramatically by stating that if the books used were piled one on top of the other in one year there would be a pile of books towering nineteen times higher than the Empire State building. Five members of the clerical staff, devoting most of their time to procuring and reshelving the books used by our clientele, have returned to the shelves in the past year nearly five miles of books.

Twenty years ago when the Medical Library was opened its maximum capacity was estimated to be 100,000 volumes. It now has approximately 150,000 volumes jammed into every possible nook and cranny. It should be obvious that there is no more space. By ruthlessly discarding certain materials and opening an annex in the Butler Library at 114th Street, it was possible to function this year. An additional quarter of a mile of shelving will be needed to accommodate the normal number of journals, texts, and monographs re-

ceived annually. The erection of a new Library should be given an exceedingly high priority in order that medical education, practice, and research is not hampered by poor library service.

Every individual connected with the medical sciences ought to have the opportunity to gain the knowledge of how to use the standard medical reference works and the indexes to the literature. Toward this end, the library conducted orientation tours and lectures to all of the entering classes of the various schools and divisions of the Medical Center. In addition, the Librarian again lectured to the medical and dental students on the literature of anatomy. In the coming year further lectures in other fields are planned.

The library administration continued to serve as the *deus ex machina* for matters pertaining to the history of medicine. The changing exhibits both in the library and in the School of Dental and Oral Surgery should be a constant reminder that in the matter of new discoveries "we are as dwarfs sitting on the shoulders of giants." During the current year the library coöperated by providing illustrative material and secretarial assistance for the small but active history of medicine group within the Columbia Medical-Philosophical Society.

The generosity of the Faculty, alumni, and friends makes it possible to provide publications which otherwise would not be available. Professor Jerome P. Webster contributed toward the purchase of publications relating to plastic surgery. Dr. George Parmly Day presented forty-five medical publications issued by the Yale University Press in memory of the late Dean William Darrach. From the estate of the late Dr. Otto Marburg came an extensive collection of reprints and his office library.

The national and international activities of members of the staff in bibliographical, library, and history of science associations have contributed to the distinction of the Medical Library.

Respectfully submitted,

WILLARD C. RAPPLEYE, M.D.

*Dean*

*June 30, 1949*



# COLUMBIA UNIVERSITY BULLETIN OF INFORMATION

Fiftieth Series, No. 45

December 2, 1950

## Report of the Dean of the Faculty of Medicine

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1950



COLUMBIA-PRESBYTERIAN MEDICAL CENTER  
168TH STREET AND BROADWAY  
NEW YORK 32, NEW YORK

## Columbia University Bulletin of Information

Fiftieth Series, No. 45

December 2, 1950

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The series includes the Report of the President to the Trustees and the Announcements of the several Colleges and Schools relating to the work of the next year. These are made as accurate as possible, but the right is reserved to make changes in detail as circumstances require. The current number of any of these Announcements will be sent upon application to the Office of University Admissions.

C. U. P. 7,700—1950

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# FACULTY OF MEDICINE

## REPORT OF THE DEAN

FOR THE ACADEMIC YEAR ENDING JUNE 30, 1950

*To the President of the University*

SIR:

I have the honor to submit the annual report of the activities under the Faculty of Medicine for the academic year 1949-1950.

The registration of the School of Medicine was as follows:

First year . . . . .	120
Second year . . . . .	108
Third year . . . . .	110
Fourth year . . . . .	104
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Total . . . . .	442

The graduating class of June 8, 1950, obtained internships in forty-nine hospitals in all sections of the country. There were nearly 2,700 applicants from 328 colleges for the first-year class scheduled for admission in September, 1950. The 119 students accepted received their preparation in forty colleges and came from twenty-two states. About one-third are residents of New York City. The average age of the civilian students accepted is about twenty years, whereas that of the veterans is about twenty-five years. Thirty-two of the 108 male students accepted are veterans. The wide distribution of applicants for admission and the acceptances are illustrated in the following figures:

<i>Area</i>	<i>Applicants</i>	<i>Acceptances</i>
New York City . . . . .	880	31
New York State (exclusive of New York City) . . . . .	267	15
Other states or territories . . . . .	1,391	72
Foreign . . . . .	99	1
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Totals . . . . .	2,637	119

The Dental School's registration was as follows:

First year . . . . .	40
Second year . . . . .	28
Third year . . . . .	25
Fourth year . . . . .	31
<hr/>	
Total . . . . .	124

There were fifty-one students registered for noncredit postgraduate courses in the Dental School and twenty-seven students registered for postgraduate credit courses during the year. A class of twenty-four students was enrolled in Dental Hygiene and ten received the Bachelor of Science degree.

In the School of Public Health the registration was as follows:

D.P.H. candidates . . . . .	2
M.P.H. candidates . . . . .	33
M.S. candidates . . . . .	85
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Total . . . . .	120

The registration in the School of Nursing was as follows:

First year . . . . .	100
Second year . . . . .	100
Third year . . . . .	105
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Total . . . . .	305

In the Course for Occupational Therapists seventy-five students were registered; fifty-one students were registered in the Course for Physical Therapists. The following degrees were awarded during the year:

M.D. . . . .	104
Med.Sc.D. . . . .	2
D.D.S. . . . .	28
D.P.H. . . . .	2
M.P.H. . . . .	27
M.S. (Public Health fields) . . . . .	48
B.S. (Nursing, Occupational Therapy, Physical Therapy, Dental Hygiene) . . . . .	83

In addition to the students enrolled under the Faculty of Medicine there were eighty-two students registered under the Graduate Faculties of the University who took courses and advanced research work in the departments of the Medical School.

Eighty-three visiting scholars from twenty-nine foreign countries came to the School during the year for periods up to a full year of study.

It is gratifying to report that during the academic year eighty-eight of the medical students received scholarships averaging about \$388 per student.

Mr. Arthur Haut was given the Janeway Prize, awarded to the graduate who, in the opinion of the Faculty, has ranked highest in efficiency and ability. The Borden Undergraduate Research Award was given to Dr. James Huston Westover for outstanding research work during his medical course. The Dr. Harold Lee Meierhof Memorial Prize in Pathology was awarded to Dr. Raymond Wilhelmi. The Dr. William Perry Watson Prize in Pediatrics was awarded to Drs. Hans W. Neuberg and Henry P. Ward. The Edwin G. Zabriskie Prize in Neurology was given to Dr. Irving P. Ackerman. Dr. William W. Harnett received the Prize for Excellence in Pedodontics awarded by the Class of 1929.

The Van Woert Scholarship Award was given to Dr. John J. O'Loughlin. Dr. Carl R. Feind was awarded the Coakley Memorial Prize in Otolaryngology. Dr. Charles A. Ragan was given the Joseph Mather Smith Prize. The Thomas F. Cock Prize was awarded to Dr. Alfred A. Messer. The Prize for Excellence in Operative Dentistry was awarded to Dr. Edwin J. Henrich. The Sigma Epsilon Delta Prize was awarded to Morton Louis Shapiro. The Rowe-Wiberg Medal, awarded to the student who has shown the greatest proficiency in prosthetic dentistry, was given to Dr. Hyman A. Citron. The Ewell Prize Medal in Dentistry was awarded to Dr. Carl M. Barlow.

It is with the greatest sorrow that we report the following deaths during the year:

Jacob Byer, Lecturer in Medicine, on May 8, 1949

Joseph Collins, Consultant, Presbyterian Hospital, on June 11, 1950

Edwin M. G. Deery, Attending Neurological Surgeon, New York Orthopaedic Dispensary and Hospital, on January 27, 1950

Moses Diamond, Professor of Dental Anatomy and Attending Dental Surgeon, Presbyterian Hospital, on October 6, 1949

John S. Lockwood, Professor of Surgery and Attending Surgeon, Presbyterian Hospital, on June 16, 1950

Daniel Meenan, Lecturer in Otolaryngology, on May 13, 1950

Grant P. Pennoyer, Associate in Surgery, on April 11, 1950

M. Maxim Steinbach, Research Associate in Bacteriology, on February 1, 1950

The following designations were made during the year:

Harold W. Brown, Acting Executive Officer of the Department of Public Health

Marie L. Franciscus, Acting Director of Training for Occupational Therapists

Maurice J. Hickey, Acting Executive Officer of the Department of Dentistry

Beatrice C. Seegal, Acting Executive Officer of the Department of Bacteriology

The following changes in appointments were made during the year:

Bion R. East, Professor of Dental Public Health Practice, from October 1, 1949

Maurice J. Hickey, Associate Dean (Dental and Oral Surgery) and Executive Officer of the Department of Dental and Oral Surgery, from October 1, 1949

Harry S. Mustard, Professor of Public Health Practice, from January 1, 1950

A. Purdy Stout, Professor of Pathology, from January 1, 1950

Effective July 1, 1950, the following promotions were made:

Edmund Applebaum, Associate Professor of Dental Anatomy

Ralph A. Deterling, Associate Professor of Surgery

Samuel Frant, Associate Professor of Epidemiology

David V. Habif, Associate Professor of Surgery

Norman Jolliffe, Associate Professor of Nutrition

Raffaele Lattes, Associate Professor of Surgery

Frank L. Meleney, Professor of Clinical Surgery

John L. Nickerson, Professor of Physiology

Max Pleasure, Associate Professor of Dentistry

Thomas W. Stevenson, Jr., Associate Professor of Clinical Surgery

Frances Stoll, Associate Professor of Dental Hygiene

Irving R. Tabershaw, Associate Professor of Industrial Hygiene

Joseph C. Turner, Associate Professor of Clinical Medicine

## STUDENT HEALTH SERVICE

The Student Health Service has completed another active year. The prepayment medical plan for the students, which was commenced two years ago, has proven itself a most satisfactory arrangement. The health fee covers Associated Hospital Insurance and outpatient medical care.

The B.C.G. vaccination program has continued to develop along the lines initiated last year. By next year all the tuberculin negative medical students will have been offered immunization on a voluntary basis. The occupational therapy students, because of their work in tuberculosis hospitals, have been included in the program.

The Personnel Medical Clinic has continued to provide limited care for secretarial and technical University employees working at the Medical Center. Dr Gilbert H. Mudge has been in charge this year and will be followed next year by Dr. George Curran.

## RETIREMENT PLAN

During the year the University initiated a retirement formula for non-academic employees. Under the program an employee aged thirty or over with three years of continuous service on July 1, 1949, will automatically be included in the retirement plan regardless of age. The normal retirement age will be sixty-five but certain provisions are made for those between the ages of fifty-five and sixty-five years who wish to retire. The plan is noncontributory and the University bears the entire cost. The program is on a trial basis through June 30, 1951.

## THE GRADUATE AND POSTGRADUATE PROGRAM

The program of graduate medical education aided by the generous support of the W. K. Kellogg Foundation grant carried out here during the past five years has more than fulfilled its earlier promise in meeting the educational requirements and reorientation of graduates whose professional preparation was interrupted by military service. This group of young men returning from the services has been most eager intellectually to recapture and to extend their grasp of the problems of medical science and practice.

The program has been focused largely on the basic medical sciences in

relation to adequate preparation in the various clinical specialities. By organizing and presenting this material in rather concentrated form to the returning medical officers it has been possible in a relatively short time for many of them to offset their loss of contact with the educational foundations of clinical medicine.

The acute problem of the returning servicemen is abating. This is represented in part by the drop in registration for the current academic year. This was anticipated when the Kellogg Foundation set up the program originally and its prediction has been borne out. The demonstration of the value of this basic science program has made it a more solid and permanent part of our effort. A lasting contribution has been made to the field of graduate teaching in medicine.

A number of affiliated institutions, partly in response to the educational stimulus of the graduate program, are now organizing, or have already developed, full-time personnel in their departments of pathology, bacteriology, and, in some instances, biochemistry, and have organized intensive instructional programs in their own institutions. This has had a very salutary and beneficial effect on the quality of the professional services of these institutions, has elevated the educational value of the residencies, and, hence, has begun to attract larger numbers of recent graduates of superior qualifications. This direction of development has to some extent lessened the load on the University laboratories in certain fields. The intensification of the educational effort in our own residency system has placed correspondingly greater demands on the laboratories at the Medical Center from the residents of our own hospitals.

The long-term, adequate training of competent specialists is stabilized in a flexible program of basic science training. The aim is not just that of reviewing the general principles of medical science through lectures and demonstrations but more to open up opportunities for serious and prolonged study for those who have a long residency training. The tendency of some of the stronger hospitals to provide added facilities and full-time personnel to participate in such endeavors is most encouraging.

A flexible University program is valuable to supplement, and to some extent to carry, these efforts for affiliated hospitals where some of the medical sciences and preresidency preparation can be provided satisfactorily. In the case of anatomy the University will carry much of the re-

sponsibility. There is also considerable room for expansion in the fields of experimental physiology, pharmacology, advanced biochemistry, and biophysics.

During the first two years, attendance in these courses exceeded two hundred residents a year. This means that almost half of the total number of residents in the hospitals affiliated with the University were in attendance each year. Over the full period of the program more than seventy percent of all residents in the affiliated hospitals were registered in University courses. As the last two decades in undergraduate medical education have seen the disappearance of the abrupt transition from the two basic science years to the two clinical years through the integration of clinical and basic science instruction, the educational progress from medical school to internship and then to the residency is now regarded as merely different phases of one single, over-all program as the teaching atmosphere grows in the hospital.

It is of considerable significance that the registration in the courses in continued education for practicing physicians has been largely maintained. The total registration of 939 in eighty courses appears to indicate a widespread appreciation of the importance of this program to the medical profession. Thirty New York physicians enrolled under the auspices of the State program in the field of cardiovascular diseases. There has been a wide geographic distribution of the applicants for the courses which are offered in two basic patterns; the one- or two-day a week course being designed particularly for those living in the metropolitan area, and the solid full-time courses of one to twelve weeks for those who come from beyond commuting distance. More than three hundred physicians and scientists participated in the program and were on the instructional staff in seven hospitals affiliated with the University.

#### DEVELOPMENT PROGRAM

Near the close of the year the Trustees appointed Mr. Robert W. Watt Chairman of the Physicians and Surgeons Development Committee. He will organize the general plan for securing additional financial support from alumni, friends, and others. Working with him on this fund-raising project will be Mr. Glenn Glauser, who will devote all of his time to the program.

SLOANE INSTITUTE FOR RESEARCH IN  
HUMAN REPRODUCTION

The program of the Sloane Institute for Research in Human Reproduction has been approved both by the Trustees of Columbia University and the Trustees of the Presbyterian Hospital. This is one of the institutes recommended a year ago by the Faculty of Medicine and represents a forward step in the advancement of this important field of medicine. The Director of the Institute will be Dr. Howard C. Taylor, Executive Officer of the Department of Obstetrics and Gynecology.

## INSTITUTE OF CANCER RESEARCH

During the year the development of the Institute of Cancer Research reached the final phase. Although the Francis Delafield Hospital did not open on schedule, it is completed and is now in the process of being furnished and will be occupied during the summer. The Faculty has proceeded with the organization of the staff, including a number of residents and fellows. Through the encouragement and generous support of the American Cancer Society a program of outstanding eminence has been formulated. The Delafield Hospital will provide more than three hundred beds for patients with different forms of malignant disease, as well as excellent laboratories for hospital services and research. The most modern equipment is being installed.

The professional activities of the Delafield Hospital are closely correlated with the research programs in the medical school and particularly with the programs of investigations in the four new laboratory floors added to the Medical School for cancer research, financed by grants from the United States Public Health Service and Columbia University.

The Institute of Cancer Research was created to coordinate the research programs in malignant disease in the hospitals at the Medical Center, including the Delafield, and the investigative work conducted in the basic departments and clinical divisions of the University. The program will make possible a comprehensive attack upon the entire cancer problem inasmuch as experts in all of the basic medical sciences and specialists in all of the therapeutic disciplines are available to apply their knowledge in the attack upon cancer, its diagnosis, therapy, alleviation,



and prevention. The plan also includes the training of young physicians, dentists, nurses, and public health personnel in the various aspects of cancer. This plan will include, among other things, the interchange of hospital residents in the Presbyterian Hospital and other hospitals at the Medical Center with those in the Delafield Hospital, as well as opportunities for young investigators to work in the medical sciences.

It is the conviction of the Faculty that fundamental research in cancer holds the highest promise if closely correlated with the basic medical sciences from which investigators may derive stimulation and obtain the most recent knowledge of developments, rather than carrying it on in separate, detached groups in some isolated institution. It is for these and other reasons that the Faculty recommended that the cancer research program be developed in close cooperation with the medical sciences in order to insure the prompt and necessary cross-fertilization of the various fields which contribute to better understanding of the mechanisms of malignant disease.

#### THE HEALTH MAINTENANCE PROGRAM

A development of general interest is the launching of the Health Maintenance Demonstration at Montefiore Hospital, initiated by the Community Service Society of New York and the officers of Montefiore Hospital. The Medical Faculty has been asked to cooperate in view of the importance of this program to our general philosophy of medical education and community service. It has enthusiastically voted to participate. Three members of the Faculty serve on the Operating Board of that demonstration.

#### EXCHANGE OF RESIDENTS

During the past year a plan was worked out for the exchange of residents from Presbyterian Hospital with registrars from Guy's Hospital in London, England, financed jointly by Guy's Hospital and the Josiah Macy, Jr., Foundation. The program has been met with enthusiasm by the doctors who are participating in the exchange and by the staffs of both Guy's Hospital and the Presbyterian Hospital. This seems to be an important type of international cooperation which serves a number of useful purposes.

## THE NATIONAL HEALTH SERVICE OF GREAT BRITAIN\*

The Dean made a study of the National Health Service of Great Britain to ascertain the effect of the new health service, which went into operation on July 5, 1948, upon medical education, the quality of medical practice, the change in the character of medical-hospital services and the effects upon medical research, the financing of medical schools and hospitals, and other aspects of this important program. It is obvious that the plan must be examined in its proper historical perspective and in its context as an integral part of national insurance and socialism.

The sharp attacks upon and criticisms of the National Health Service alone are meaningless because its form, functions, and dimensions are determined by the underlying economic and social structure of Great Britain. Discussion of the possibilities of transplanting such a system to the United States is futile because of the fundamental differences in the political and social philosophy, as well as the economic organization and the financial resources of the two nations. A point usually overlooked by American observers is the fact that the National Health Service is an outgrowth of the National Health Insurance program initiated by Mr. Lloyd George and put into effect in 1913.

## PUBLIC HEALTH CENTER

It is very gratifying to report that the City of New York, acting upon the recommendation of Mayor William O'Dwyer and Deputy Mayor William Reid, has extended for another five years the agreement for the construction of the Public Health Center. It will be located on Riverside Drive between 165th and 168th Streets, bounded on the west by the West Side Drive. It will include the laboratories of the City Department of Health, those of the Public Health Research Institute, Inc., and the School of Public Health of Columbia University. When completed it will make possible a close cooperation between the University and these important municipal health activities and will afford new and extended opportunities for the training of personnel in the fields of public health and preventive medicine and in the community aspects of modern medicine.

\* Reprint published and distributed by the Josiah Macy, Jr., Foundation, New York.

## THE RANDOLPH WEST MEMORIAL LECTURESHIP

Dr. Alastaire Frazer, Professor of Pharmacology at Birmingham University, England, gave the Randolph West Memorial Lectureship during the year. This lectureship marks a tribute to Dr. West, one of the outstanding medical men of our Faculty and of the country.

## PHYSICAL MEDICINE AND REHABILITATION

The program of physical medicine and rehabilitation supported generously by the grant from the Baruch Committee on Physical Medicine has been going forward actively. The plan of integrating the teaching and research in this field at the Medical Center with those of the Institute for the Crippled and Disabled has laid the foundation for a contribution of the highest order. An interchange of patients at the Institute and at the Medical Center and the active use of the Institute for the Crippled and Disabled in the instruction in physical medicine, physical therapy, and occupational therapy have provided unique opportunities for teaching in these fields.

The construction at the Medical School of the temperature control exercise room is now going forward after numerous delays largely because of the lack of adequate space for this phase of the program. Physical medicine and rehabilitation are an indispensable part of modern medical care. The generous assistance from the Baruch Committee has made our program possible.

## BOARD OF HOSPITALS—CITY OF NEW YORK

A matter of wide interest in the community is the creation of a new Board of Hospitals for the City of New York. This Board will act as the top policy making body of the Department of Hospitals. Its functions will include the development of long-range programs for the care of the aged, the sick, and the infirm who are the responsibilities of the City, the promotion of the highest possible standards of medical care in the municipal institutions, and the exercise of those broad legislative powers consistent with law. The Board will also have the responsibility of approving both the capital and expense budgets of the Department of Hospitals and it will have the power to review the action of the Commissioner in mat-

ters relating to licensure and proprietary hospitals. The Dean has been appointed a member of the Board of Hospitals.

#### SOME CURRENT MEDICAL PROBLEMS

The health of the population is one of the primary responsibilities of any nation. It ranks with such other major internal problems as food, housing, employment, industrial production, and social security, each of which is the concern of every citizen.

It is clearly apparent that in the future an increasing proportion of the population will be in the older age groups. This will have a definite effect on the character of medical care and public health because a larger part of the health needs of the future will represent disabilities associated with middle and late life, particularly the chronic and degenerative disorders which often handicap the individual and may limit his ability to work or to live a normal life. This presents an urgent and serious problem for the hospitals of the country, which are becoming increasingly crowded with patients afflicted with chronic diseases and the disorders of late life. A wide variety of diagnostic, therapeutic, rehabilitation, reeducation, recreation, and psychotherapeutic programs must be provided for the proper care of such persons.

Another noteworthy factor is the trend toward specialization and the need of cooperation and teamwork as represented by group practice. Knowledge of the diagnosis, treatment, and prevention of disease is far in advance of its application to the needs of individuals and the community. Today no single individual can master the entire field of medicine. Specialization is inevitable and, within limits, desirable, but it must be coupled with the proper grouping of skills and talents to provide every patient, as far as possible, with the highest quality of health care. There is an increasing dependence upon the exact quantitative methods of the laboratories, not only for the purpose of diagnosis but also for their use in the evaluation of therapeutic procedures. Laboratories and their properly qualified professional and technical personnel are as essential a part of the hospital programs of the country today as are beds for patients.

It has long been recognized that illness is unpredictable for the individual but that the economic risks of sickness and incapacity can be distributed on a community-wide basis by spreading those hazards over a

large population group and for a long period of time. The voluntary prepayment insurance programs in the hospital field have been conspicuously successful. More recently, medical cash indemnity insurance, as yet almost entirely for surgical cash benefits during hospitalization, is going forward rapidly. What is needed is comprehensive medical care prepayment insurance, which to date has had only a few pilot experiments. The recent rapid growth of prepayment medical care programs sponsored by the leading labor unions, either independently or jointly with industry, indicates a significant new development in American medicine and public health. Since many of the plans developed recently are tied to pension contracts which are actuarially unproven and probably financially unsound, the proposals may well lead ultimately to comprehensive Federal pension and sickness insurance programs.

The increasing emphasis upon the ambulatory care of patients is relieving the hospital situation in many areas from a major crisis. It is quite apparent that the outpatient departments of hospitals and the office practices and clinics of physicians have become much more important and necessary than formerly in the adequate provision of medical care for any community.

Associated with the increasing development of outpatient services is the modernization of home care. It has been amply demonstrated in a few experiments that, in addition to hospital and outpatient care, it is possible to provide satisfactory medical and nursing attention and sound preventive medicine in the homes of many patients. While there are definite limitations in the application of this principal, the proper development of home care will in the future relieve greatly the burden on the hospitals and hence reduce the necessity of building and maintaining as many such expensive units as would be required otherwise.

It is self-evident that medical and health services require the sound organization and financing of facilities, resources, and personnel. The widespread discussions of these problems, carried on to a considerable extent by intensive propaganda and high-pressure methods, have placed emphasis particularly upon the mechanical and fiscal aspects of these problems and have had a tendency to disregard the crucial element in any sound plan. A program can be only as good as the personnel who operate it. Any plan of organization, whether developed from within

the professions or imposed upon them from without, which lessens the responsibility of the trained professional worker or denies him the rewards of superior ability and character will, in the long run, be detrimental to the public welfare.

The organization and administration of health and medical services must of necessity avoid the proposals of extremists who, on the one hand, advocate complete governmental control and management, or on the other, are equally vigorous in defending vested interests and the status quo. It is often difficult to steer a course in the middle of the road, particularly because that requires a high order of judgment and courage. Progress must be by evolution but it also must be progress.

The American people are convinced of the value of adequate health services and are determined that in some way the benefits of modern science shall be made available to all. Medical security is coming and it is up to the medical profession to propose the ways and means by which sound progressive plans can be formulated. It would be indeed short-sighted and, in the long run, futile to ignore the broad social implications of medicine because it is now as much a social as it is a biological science. It is our responsibility to create an environment for medical and health services which will provide opportunities for the very expression of individualism which has made medicine and its allied health sciences so conspicuous in the improvement of the welfare of man.

Most physicians, dentists, nurses, and public health officers realize their responsibilities for the interpretation and application of modern medical science to the needs of the entire population. Medical or dental practice today is not a private enterprise alone, it is also a public responsibility. Professional education is undergoing considerable adaptation to the newer duties which the physician, the dentist, the nurse, and the public health officer must assume. This is reflected in the selection of students who are applying in great numbers to our professional schools.

#### "PREMEDICAL" EDUCATION

The college preparation for medical, dental, and public health fields should not be preprofessional in character. So-called "premedical" education should be abolished in the colleges of the country. There is no such thing as "premedical" education, nor should students in colleges who

plan to enter professional schools be regarded as premedical or predental students. That education is not "pre" anything but should be devoted to the objective of providing as broad a cultural education as the institution can offer. It should be a preparation not for medicine or dentistry or public health but for life.

Students should be selected for professional education not so much upon scholastic grades or the subjects which they have taken as upon their character, personality, intelligence, ability, industry, general culture, resourcefulness, maturity, and evidence of a grasp of the principles underlying the sciences upon which medical study is dependent. Success in the war on diseases is not a matter of physical facilities, organizations, or the total number of professional workers in any field, or even extensive knowledge of the problems involved. Only through properly trained and competent personnel can a community expect to meet its responsibilities for the care and treatment of illness and the preservation of health. There is no substitute for this essential feature.

The hope of democracy is in trained leadership. The medical, dental, nursing, and public health professions are the trustees of the essential knowledge which will solve this large national problem. Possessing that knowledge they are in a position to make a vital contribution to the public welfare and have a responsibility to do so. Our professions will occupy their proper places in modern society to the extent that they provide leadership and trained personnel.

Reports of the activities of the various departments under the Faculty follow.

## DEPARTMENT OF ANATOMY

Professor SAMUEL R. DETWILER, Executive Officer

The Department suffered a severe loss in the untimely death of Dr. Moses Diamond, Professor of Dental Anatomy, on October 7, 1949. His teaching and research responsibilities have been assumed by Professor Edmund Applebaum who has been promoted from Assistant Professor to Associate Professor of Dental Anatomy. Dr. Charles A. Ely has been promoted from Instructor to Associate in Anatomy and Dr. Alexander Seelig from Assistant to Instructor in Anatomy.

Professor Earl T. Engle has been assigned to the Department of Obstetrics and Gynecology as of July 1, 1949.

Professor Dan H. Moore has been on a year's leave of absence and has served during this period as biophysicist on the staff of the London office of Naval Research.

There have been no fundamental changes in the courses offered to first-year medical and dental students, with the exception of the courses in oral anatomy and oral histology, in which Professor Applebaum and Professor Joseph A. Cuttita of the Department of Dental and Oral Surgery have effected a closer relationship between fundamental anatomical knowledge and the problems of clinical dentistry.

The basic science program for residents from affiliated hospitals has been heavy and has been ably administered by Dr. José M. Ferrer of the Department of Surgery. Seventeen courses were offered with a total registration of 258.

Professor Herbert O. Elftman, applying cytochemical methods to the study of the male reproductive system, succeeded in establishing the cyclic nature of Sertoli cell activity in the mouse and has correlated this cycle with that of spermatogenesis. The cytochemical investigation of spermatogenesis in man, with parallel studies on the mouse, has provided results which have promise of practical application.

Professor Wilfred M. Copenhaver contributed a chapter on the experimental embryology of the cardiovascular system for a book entitled *Analysis of Development*. He is studying the regenerative capacity of the embryonic heart in amphibians. In collaboration with Professor Samuel R. Detwiler, studies are being completed on the effects of thiouracil on the growth and pigmentation of amphibian larvae. In collaboration with Professor Raymond C. Truex of Hahnemann Medical College, an investigation is being completed on the distribution of specialized conduction fibers in the atria of man and other mammals.

Professor Philip E. Smith, with the collaboration of Dr. Frederic J. Agate, Jr., has been extracting human placentae and testing for ACTH-like substance. Consistent decreases in ascorbic acid in day-old rats have been secured



with the extracts. Studies have also made on the numerical response of blood eosinophiles in rats under various conditions with other adrenal cortical activity. In June Professor Smith received the honorary degree of Doctor of Science from Pomona College.

Professor Charles R. Noback is engaged in a histochemical study of Wallerian degeneration. These studies are being supported by a grant from the Coordinating Council for Cerebral Palsy in New York City. He is completing also a study of the developmental anatomy of the human prenatal skeleton.

Professor William M. Rogers and Dr. Herman Gladstone completed a study of the nutrient foramina and the arterial supply of the lower end of the femur. These studies are being continued on other bones and are of practical importance to orthopedic surgeons. Professor Rogers, Dr. Gladstone, and Mr. Carl Barlow, a fourth-year dental student, are studying the effects of lesions of the trigeminal nerve in monkeys with special reference to altered reflexes involving facial muscles and the functional and structural changes in the temporomandibular joint. Professor Rogers contributed a section on gross anatomy for the *Textbook of Dental and Oral Anatomy* by the late Professor Moses Diamond.

Dr. Ely is studying the properties of antigonadotrophic sera and the possible effect of such sera on the development of testicular tumors in estrogen-treated mice of the A strain. In addition he has undertaken a study of the effect of lymphoid-tissue antisera on the function and histochemistry of lymphoid tissues.

Professor Applebaum is studying changes in the oral tissues of rats following experimentally produced hypertension. This study is made possible through the kindness of Dr. Abbie Knowlton of the Department of Medicine, who made the material available.

Dr. Alexander Seelig is engaged in a study of the dental pulp in relation to systemic diseases in man.

Dr. Agate, Jr., and Professor Samuel Graff of the Department of Biochemistry are investigating the relationship of various endocrine states to neoplastic growth and inhibition. Dr. Agate is studying the growth and physiology of adrenal transplants in adrenalectomized rats and also the growth of melanomas in playfish-swordtail hybrids.

Professor Adolph Elwyn has carried a heavy teaching load, giving courses in neuroanatomy to various groups at the Medical Center in addition to his undergraduate courses. He also gave an elective course of lectures in medical history which was attended by medical students and members of the staff.

Professor Harry H. Shapiro has completed a microscopic study of transplanted tooth buds in the cat in the early stages of reestablishment of the transplants. He edited the recently published book *The Surgical Treatment of Facial Injuries*, by Kazanjian and Converse. He served as visiting lecturer

in anatomy at the Army Medical School, Washington, D. C., and at Tufts College Dental School, where he gave lectures to postgraduate dental students.

Professor Emanuel B. Kaplan has continued to direct the course in basic science for orthopedic residents and has actively carried on various investigations dealing with fundamental anatomical problems of importance to the orthopedic surgeon.

Dr. Jane Vorhaus Gang, assisted by a United States Public Health Fellowship, is carrying out a cancer research project using techniques of experimental embryology. This consists of grafting small fragments of the Lucké frog kidney carcinoma to organizing regions of developing salamander embryos to determine whether embryonic organizers will bring about cyto-differentiation in malignant cells as they do in primitive embryonal cells. Dr. Gang is also conducting observations on the effect of guanolozone on the development of salamander embryos.

Professor Detwiler has completed an experimental study of ear differentiation in salamander embryos and is engaged in further studies on behavior following surgical procedures on the embryonic brain. Under his direction Mrs. May B. Hollinshead is making an experimental study of wound healing and regeneration in the embryonic spinal cord of amphibians.

## DEPARTMENT OF BACTERIOLOGY

Professor BEATRICE C. SEEGAL, Acting Executive Officer

The Department suffered a deeply felt loss in the death of Dr. M. Maxim Steinbach. He was always available for the teaching activities of the Department and his investigations brought new light into the field of experimental and clinical tuberculosis. The Department was also saddened by the untimely death of Miss Lisa Maier of the technical staff.

Recent additions to the staff include two lecturers, Dr. Mabel Satterly Ingalls and D. Isabel Morgan Mountain; an instructor, Dr. Robert H. Mueller; and two research assistants, Alice Knox and Sam Beiser. Dr. Samuel Raymond has been promoted to Associate. Dr. Harold Baer resigned to accept an assistant professorship in bacteriology at Tulane University.

The Department continues to serve the bacteriological and immunological diagnostic needs of the Presbyterian Hospital, the Sloane Hospital for Women, and the Vanderbilt Clinic. Although these activities invigorate the Department, it seems pertinent to state that they impose a heavy financial burden on the University.

The educational program is being enlarged to include more extensive experience in immunochemistry and virology. For this purpose a complete revision of the laboratory manual used by the medical and dental students is in

progress. The graduate students in the Faculty of Pure Science will spend a three-month period in each of the laboratories of Professor Elvin A. Kabat and Professor Harry M. Rose for special training in these subjects. Six graduate students were candidates for the degree of Doctor of Philosophy during the year. Two of the incoming candidates for a Ph.D. degree in bacteriology previously received their M.D. degrees from this school.

The School of Nursing sends its students to this Department for a course in bacteriology, given under the direction of Dr. Margaret Holden. Graduate instruction in bacteriology has been given by Professors Rose and Fox to residents in affiliated hospitals. Sixteen students took the course in medical mycology given by Professor Rhoda W. Benham of the Department of Dermatology; seven of these students were physicians and eight were from the School of Public Health. The facilities of the laboratory have been made available to Professor Henry A. Bartels of the School of Dental and Oral Surgery for his course in bacteriology for oral hygienists.

Professor Claus W. Jungeblut has continued his comprehensive investigation in poliomyelitis. During the past year he has isolated the virus from the heart muscle of three fatal cases of the disease and from a biopsied specimen of a paralyzed skeletal muscle in an acute nonfatal case. In his experiments with the murine strains of poliomyelitis virus, MM and Col. SK, Professor Jungeblut has been successful in reestablishing simian pathogenicity by utilizing the cynomolgus monkey. Professor Jungeblut accepted an invitation to participate in the European International Poliomyelitis Conference in Amsterdam in May, 1950, at which he delivered a paper on neural and extraneural lesions produced by strains of poliomyelitis virus isolated from skeletal and human heart muscles. Alice Knox, in association with Professor Jungeblut, has completed a study of the effect of pregnancy on the susceptibility of mice to murine poliomyelitis. Dr. Beni Horvath, who has been given a fellowship in this Department to work with Professor Jungeblut, has been studying the distribution of the poliomyelitis virus over muscle proteins.

Professor Kabat has reported his research activities to the Department of Neurology. Professor Kabat has taken a very active part in extending the teaching of immunochemistry to both the medical and the graduate students. He has accepted an invitation to give a course in immunology at the University of California this summer. Sam M. Beiser, a Fellow of the American Academy of Allergy, in association with Professor Kabat, has continued his work on the immunochemical characterization of blood group substances from cattle.

Professor Rose, in the course of his studies of respiratory tract secretions which modify influenza virus infectivity, has demonstrated that sputum contains at least three factors. One inhibits viral hemagglutination. A second inhibits the infectivity of virus, although apparently not an antibody. A third factor, associated with the mucin of sputum, is capable of enhancing infection

with the influenza virus. Professor Rose's studies of rickettsialpox have revealed antigenic and biological differences in several strains of *Rickettsia akari*. Chemotherapy of the natural and experimental disease with chloramphenicol, aureomycin, and terramycin indicates the latter two are the superior antibiotics in this disease. In association with Mary McClain, suggestive evidence has been obtained that early treatment with aureomycin and terramycin may modify the immune response following infection with *R. akari*. Dr. Lenora B. Irwin of the Department of Neurology is collaborating with Professor Rose on studies of the newly recognized Coxsackie group of viruses and their relation to human infections, especially of the central nervous system. A study of infections caused by the virus of herpes simplex was initiated by Professor Rose on May 1, 1950, in collaboration with the Department of Ophthalmology. Professor Rose is an Associate of the Influenza Commission of the Surgeon General's Office. He has given several lectures at local county society meetings and other scientific meetings and has accepted an invitation to participate in the program of the American Medical Association this June.

Professor Theodor Rosebury has been on sabbatical leave. While on leave he worked at the Medical Research Foundation at Dade County, Florida, on the new spirochete immobilization test for syphilis. During Professor Rosebury's absence, Dr. Ada R. Clark and Dr. Solon A. Ellison have carried on the teaching of the dental students. The Department is also indebted to Dr. Clark for her splendid assistance in planning the program for the Department's graduate students. Dr. Clark and Dr. Ellison have continued the study of the anaerobic organisms of the mouth.

Professor Beatrice C. Seegal and Dr. Margaret Holden are making a study of tissue culture cells from infected and normal animals and from man for the purpose of determining the response of the cultured cells to products of specific pathogenic bacteria. The effect of cortisone on the allergic tissue reactions is under investigation. Work carried on in collaboration with Dr. Emily N. Loeb and Dr. Abbie I. Knowlton of the Department of Medicine and Dr. Herbert C. Stoerk of the Merck Institute for Therapeutic Medical Research has indicated that adrenalectomized rats subjected to kidney damage by the administration of nephrotoxic serum may develop hypertension, as do nonadrenalectomized animals, provided they remain in an adequate state of nutrition. The observations of Professor Seegal and Dr. Loeb on the production of nephritis in rats following the injection of antibodies to homologous placenta have been extended to the dog. Professor Seegal and Dr. Deborah L. Khorazo have demonstrated that rabbits readily produce antibodies to rabbit lens when the lens is given with tubercle bacillus in oil and aquaphor.

Professor Charles L. Fox, Jr., in association with Dr. Samuel Raymond and Dr. Alex Pinsky, is investigating a new diazotizable amine, produced by sulfa resistant staphylococci, which, like paraminobenzoic acid, prevents the anti-

biotic action of the sulfonamides. Professor Fox has also extended his observations on intracellular and extracellular electrolyte balance in infection, shock, and other disease processes. A markedly improved flame photometer, designed by Professor Fox, has greatly facilitated these studies. Professor Fox has been appointed Assistant Professor of Pediatrics at New York Medical College and Assistant Attending Pediatrician at Flower-Fifth Avenue Hospital. During the year Professor Fox lectured in Richmond, Virginia, at the Academy of Medicine and at the Medical College of Virginia on intra- and extracellular electrolyte changes in disease. Exhibits of these studies were presented at the Philadelphia meeting of the American Academy of Pediatrics and at the New York Academy of Medicine.

Professor Seymour P. Halbert has carried on his experimental work in the Department of Ophthalmology. The Department of Bacteriology is grateful to him for his able assistance in the teaching program.

Dr. Raymond collaborated with Dr. Robert F. Gehres of the Department of Urology last year in developing a solution, Calsol, useful in the dissolution of kidney stones. This work received the second prize of the American Urological Association. The work is being continued in collaboration with Dr. James C. Monteith, resident of the Department of Urology, and with the assistance of Lewis Kurke of the first-year medical class. Herbert Wohl is investigating the reduction of tetrazolium salts by enzyme systems of bacteria. Dr. Sidney J. Circle of the Department of Physiology has collaborated with the project and has supervised the use of the electronmicroscope.

Dr. Margaret Holden and Dr. Henry A. Rusch, Jr., of the Department of Medicine, have undertaken a problem designed to investigate the lytic effect of specific bacterial allergens on the leukocytes of normal and hypersensitive persons.

Dr. Elliott Middleton, Jr., and Elizabeth B. Middleton, in studies of the streptococcus in relation to rheumatic fever and nephritis, have found that certain combinations of enzymes of the hemolytic streptococcus, in association with plasminogen, damage body cells both *in vitro* and *in vivo*.

The Department has had both the pleasure and the profit of association with one of its former members, Professor Emeritus of Dermatology Dr. J. Gardner Hopkins, who was formerly Assistant Professor of Bacteriology under Dr. Zinsser. Professor Hopkins is carrying on investigations in *Cryptococcus neoformans* infections with one of his associates, Dr. James R. Trimble, who is a candidate for a Ph.D. degree in bacteriology.

## DEPARTMENT OF BIOCHEMISTRY

Professor HANS T. CLARKE, Executive Officer

Instruction in biochemistry has been given to the first-year classes in the medical and dental groups and to seventy-six graduate students under the Faculty of Pure Science, of whom thirty had major interest in biochemistry. Four new lecture courses, one at an elementary and three at an advanced level, have been added to the graduate program of instruction. A lecture course in biochemistry for students under the graduate medical program was also given. Owing to the increase in the size of the medical class, the number of non-medical graduate students admitted to the introductory course in biochemistry with laboratory instruction was restricted to ten, of whom six had major interest in other departments. Of the other graduate students, thirty-six attended lectures in biochemistry without taking laboratory instruction. During the year five graduate students completed their requirements for the degree of Ph.D. in biochemistry.

Activity in research has continued along essentially the same lines as in recent years. Professor Erwin Brand has undertaken studies of the properties of synthetic polypeptides and of the rotatory powers of dipeptides. Professor Erwin Chargaff, in collaboration with Dr. Stephen Zamenhof, has continued his studies on species-specific chemical differences in nucleic acids, on the characterization of tissue lipids, and on the biological oxidation of inositol isomers. He has also continued his researches on the biological function of inositol in collaboration with Professor Margaret R. Murray of the Department of Surgery.

Professor Hans T. Clarke has begun work, with a graduate student, on protein derivatives of a new type and has continued his collaboration with Professor Frank L. Meleney of the Department of Surgery on the chemistry of bacitracin. Professor Goodwin L. Foster has continued his work on the quantitative isolation of individual amino acids from protein hydrolysates. Professor Maxwell Karshan has further developed his investigations of the etiology of periodontosis in which marked alveolar bone loss occurs at an early age, predominantly in females. Professor Edgar G. Miller, Jr., has acted jointly with Professor Brand as responsible investigator in the study of the composition, properties, and structure of peptides and proteins, supported by the United States Navy.

Professor David Rittenberg has continued to lead the group active in the investigation of intermediary metabolism with the aid of stable and radioactive isotopes. This has included investigations of the metabolism of acetone in the rat; the rate of protein synthesis in man; the reactions involved in the physiological synthesis and breakdown of peptide bonds; the metabolic activity of myosin, with Dr. Lidia Bidinost, visiting scholar from the University of

Buenos Aires; the relationship of phenylalanine and acetoacetic acid to cholesterol formation; with Dr. George Curran, Fellow in Medicine under the National Research Council; the dynamics of porphyrins and bile pigment metabolism in man, with Dr. Irving M. London, of the Department of Medicine; the effect of vitamin B<sub>12</sub> and folic acid on porphyrin formation, with Dr. London; the metabolism of serine and its role as a precursor of uric acid, with Dr. David Sprinson; and the metabolism of threonine, with Dr. Sprinson. Professor David Shemin has studied the biosynthesis of the blood pigment, in the course of which he has established the source of every carbon atom in the molecule of heme. He has investigated the origin of serine, glycine, and arginine in the mammalian organism and has made an extensive study of transemination in the living organism.

Speakers before the departmental seminar group included Professor Charles O. Beckmann of the Department of Chemistry in Columbia University, Professor Konrad E. Bloch of the University of Chicago, Dr. Gösta Ehrensward of the Karolinska Institute in Stockholm, Professor Charles Heidelberger of the University of Wisconsin, Dr. W. F. H. M. Mommaerts of Duke University, and Dr. G. Popjak of the National Institute for Medical Research in London.

## DEPARTMENT OF DENTAL AND ORAL SURGERY

Professor MAURICE J. HICKEY, Executive Officer

The death of Moses Diamond, Professor of Dental Anatomy, was a serious loss to the Department of Dentistry. Professor Diamond's contributions to research and dental education played an important role in the advancement of dentistry. A valued teacher, his loss will long be felt by his colleagues.

The demand for admission to the School of Dental and Oral Surgery continues to increase. Six hundred and ninety-six applications were received from thirty-one states, the District of Columbia, two territories, and fifteen foreign countries. For the postgraduate courses, 104 students from fourteen states, three foreign countries, and one territory were registered. Courses for dental hygienists registered twenty-four students from seven states, one territory, and one foreign country.

### DENTAL CLINIC

The Dental Clinic functioned during the year under the direction of Professor Irvin L. Hunt. During the twelve-month period, May 1, 1949, to April 30, 1950, the Clinic admitted a total of 12,446 patients. Of this number, 6,267 were new admissions and 6,179 were readmissions of former patients.

There were 1,871 admissions referred from hospitals of the Medical Center; 141 were members of the University teaching staff or student body and 344

were personnel of the Medical Center. General admissions numbered 10,090. The X-ray Division made 60,867 exposures.

The total number of visits to all Clinic Divisions was 42,651 with the following distribution by clinic: Operative 4,398, Prosthetic—Crown and Bridge 4,315, Surgery 12,531, Orthodontics 8,768, Pedodontics 1,016, Periodontia 1,642, Dental Hygiene 801.

#### DIVISION OF OPERATIVE DENTISTRY

Professor Carl Oman continues to head the Division of Operative Dentistry, which is still the foundation stone upon which dentistry is built. Emphasis is on acquainting the student with superior methods and insisting on a high quality of performance in the clinic.

Beginning in the sophomore year, the technique course consists of thorough training in the use of instruments in cavity preparation, correlation between anatomic and histologic relationships, and the understanding of dental materials and their clinical use, to the end that the student learns the "why" of all procedures.

The junior year carries the training further. The transition from laboratory and bench technique to the clinic is accomplished gradually and effectively. The emphasis here is placed on careful operating and thorough understanding and application of basic principles. The senior year gives the student ample opportunity to try his newly acquired skills, to test his judgment, his handling of patients, and his ability to work efficiently and well. Weekly seminars are conducted on planned lines to parallel progress in the clinical phases of the students' development.

During the past year, the staff of the Division of Operative Dentistry have been testing the various new mouth-cured acrylics which have recently been introduced to the profession. Dr. Harold Sherman and Dr. Edward H. Cain, Jr., presented a preliminary report before the Operative Section of the First District Dental Society at a recent meeting.

Another new development is the Airdent Unit which enables the operator to control a stream of carbon dioxide gas, carrying particles of aluminum oxide, in such a manner that not only can the cutting of tooth structure be accomplished without pain, heat, pressure, or vibration, but this can be done at a speed infinitely greater than that of present rotary instruments. This new device has fantastic possibilities and may well influence cavity preparation of the future. Professor Gilbert P. Smith and Professor Carl Oman, as Heads of the Division of Prosthetic and Operative Dentistry, were guests of the manufacturers in a short course given at the University of Pennsylvania Dental School in February. The Airdent Unit and instruction in its use are to be provided through the teaching facilities of the dental schools of the country. Much



more has to be learned of its possibilities and care must be exercised in its use. In all probability, arrangements can be made for postgraduate courses here at Columbia.

There has been steady improvement in the quality of root canal therapy, under the leadership of Professor Daniel M. Kollen and Professor William Miller, with the assistance of Dr. Joseph M. Leavitt and Dr. John D. Hogan. Undergraduate students successfully treated a total of seventy-one cases.

Dr. Steven Scrivani, a graduate of the Class of 1948, was added to the staff during the year and is developing rapidly as a teacher.

#### DIVISION OF ORAL SURGERY

Professor Samuel Birenbach, Head of the Division of Oral Surgery, has been on a leave of absence. Professor Adolph Berger assumed the responsibility of directing the activities of this Division.

The undergraduate teaching has been amplified by more extended and continuous clinical assignments. With the trend of evolution of dental practice, more and more biological and medical understanding and surgical concepts are becoming necessary to meet the responsibilities of added clinical work. Teaching in maxillofacial injuries is provided to third-year medical students.

The postgraduate course in oral surgery is arranged on a two-year basis. The first-year schedule is devoted mainly to the study of basic sciences and pertinent phases of medical and surgical practice. The second year is devoted to clinical instruction and clinical practice. The clinical postgraduate instruction is hampered by the limitations of the existing physical facilities. An appropriately equipped operative amphitheater would permit segregation of undergraduate instruction from postgraduate instruction, with benefits to both.

The number of patients in the oral surgery clinic has somewhat declined in recent years. Nevertheless, during the year of 1949 treatment was given to 12,886 patients, of which 3,363 were new patients. During the year, 996 operations were performed for ambulatory patients. A well-conducted clinic is an important medium for teaching as well as a valuable public service. It is also necessary for the pursuit of investigation and research. Publications from the Department during the year include: Professor Hickey's report on the diagnosis and surgery of a Chondrosarcoma; Professor Joseph Schroff's article "A New Technique of the Surgical Removal of Osteomas of the Jaws"; and Professor Adolph Berger's paper on "Examination for Neoplastic and Pre-Neoplastic Lesions of the Oral Cavity," presented before the Medical Society of the County of New York. In another paper, "Mixed Tumors of the Palate," Dr. Berger gives a comprehensive presentation of these neoplasms and discusses the results obtained in twelve cases after treatment ranging from four to ten years.

## DIVISION OF ORTHODONTICS

The Division of Orthodontics is under the direction of Professor Arthur C. Totten.

Resignations in the Division included those of Edward G. Murphy, Associate Professor, Glenn H. Whitson, Instructor, and Nicholas Ippolito, Assistant. These losses were partially compensated by the appointments of Dr. Evelyn Witol, with the rank of Assistant Professor, and Dr. Francis Loughlin, with the rank of Assistant in Dentistry.

The curriculum has been revised and strengthened, both educationally and in line of clinical service to the public. Acquisition of the cephalometer has aided greatly in research and teaching, but there are still pressing needs for proper photographic equipment and adequate photographic and X-ray space. A competent physical anthropologist for child study and correlation is an outstanding need.

It would be to the advantage of the Division to develop a program and a competent group of men for a thorough child study, both normal and abnormal. Considerable thought has been given to the proposal that the Department have a crippled children's clinic to care adequately for the cleft palate, hare lip, and cerebral palsy child.

The teaching of prevention and correction of simple types of malocclusion and of adult orthodontics for restorative procedures has been most favorably received. This type of service by the general dental practitioner is a very important adjunct to his professional care.

Certificates of Training were awarded to nineteen postgraduate students. The short courses were well attended, particularly the lectures in the fundamentals of orthodontics and the technical instruction in the twin wire mechanism by Dr. Joseph E. Johnson of Louisville, Kentucky, who was assisted by Doctors John Dolce, George Crozat, Joseph Eby, Clare Madden, and Franklin Squires.

The Department of Anatomy and the Orthodontic Division are continuing their research in the problems of the temporomandibular joint. Work on "A Serial Study of Occlusion in Mixed Dentition" continues into its third year. The Division has started a five-year research project to determine the effect of orthodontic appliances on the caries rate in children.

At the annual meeting of the American Association of Orthodontists, held in Chicago, Illinois, papers were presented before the research section by Drs. Henry P. Levy, David J. Gross, Sidney Horowitz, Harold E. Watkins, Louis Feldstein, Richard Shwalb, and Alfred Rechter.

The Division held a one-day seminar and five evenings of "Information Nights" for the members of the Columbia University Orthodontic Alumni Society. These meetings were exceptionally well attended and members came from various parts of the United States and Canada.

Members of the staff, particularly Professor Totten and Drs. James Jay, Clare K. Madden, and Clifford L. Whitman, were especially generous in their participation this year in courses, seminars, and scientific sessions outside of their duties in the Department.

#### DIVISION OF PEDODONTICS

The functions of this Division continued under the direction of Professor Ewing C. McBeath.

Ninety-nine patients were accepted in the clinic and the total number of visits was 1,038. Per child the average number of visits was 10.4 and the average number of fillings, 7.1. It was again apparent that dental caries in children is increasing rapidly. Most of the seven hundred fillings inserted consisted of silver amalgam restorations; the others were of silicate, all of a permanent nature. The students were able to average 1.2 completed preparations per visit per child. This profitable utilization of time is made possible by systematic indoctrination of students and patients, the former by a series of lectures and clinic instruction and the latter by the employment of time during the first visit in taking a history and performing a thorough prophylaxis and a complete dental examination.

Management of patients has been so successful that the number of cases requiring local anesthesia was almost negligible. This is particularly gratifying because of the primary importance in pedodontics of the preliminary preparation of child patients for the reception of dental restorations and other operative procedures.

Professor Ewing C. McBeath and Professor Solomon N. Rosenstein and Dr. Edward S. Luboja are continuing work on some nine projects described in last year's report. In regard to the reproduction of pulps of deciduous teeth to demonstrate the normal range of morphologic variations, Dr. Luboja has completed the models and is now investigating methods for their enlargement for teaching purposes.

Members of the Department have responded to numerous requests to give outside lectures and to participate in programs of other clinics.

#### DIVISION OF PROSTHETICS

The Prosthetic Division has completed another year of activity which was primarily directed toward undergraduate teaching. Emphasis has been centered upon coordination of courses, the elimination of repetitious material where possible, and the preparation of visual aids and syllabi.

The Prosthetic Division welcomed the addition of Dr. Ennio Uccellani, who joined our staff on March 1, 1950.

The text for a clinical crown and bridge syllabus is near completion by Professor Gilbert P. Smith and Dr. William J. Miller. Illustrations for it are being

drawn by Mrs. Nancy Hardies. Professor Max A. Pleasure and Dr. Howard A. Arden are revising the full denture syllabus to include use of newer materials and techniques now available. Dr. John J. Lucca has continued his work supported by "The Isidore Stern Memorial Gift for Comparative Study of Partial Dentures." This has resulted in greater use of the precision attachment in clinical cases and an improvement in the service rendered to patients.

Dr. Oscar E. Beder and Dr. Sebastian Bruno have conducted the Surgical Prosthesis Clinic and are steadily widening its scope of activity. Dr. Arden assisted in the teaching of the oral anatomy course given to the freshmen as an effort in improving the correlation between the basic science and clinical courses. Dr. Herbert D. Ayers, Jr., has pursued his research on the newer dental materials and on dental alloys particularly.

Professor Pleasure continued his investigation of varied occlusal forms and arrangements as they function in full dentures and reported his results before the American Denture Society. Dr. Lucca is progressing in his study of occlusal discrepancies as related to temporomandibular joint symptoms. This study is being conducted in conjunction with the Temporomandibular Clinic.

A partial list of extracurricular activities of members of the Department records thirty-two essays, lectures, seminars, and clinics before dental societies and other scientific groups.

#### RESEARCH LABORATORY

The activities of this important part of dental education have been greatly strengthened by the appointment of Barnet M. Levy, Professor of Dentistry.

In September, 1949, the research laboratory was reorganized. The central chemistry laboratory was dismantled and replaced by a histo-pathology laboratory. At present, this laboratory is occupied by five full-time people and provides operating space for five other individuals. The full-time personnel are a research fellow, three histology technicians, and a secretary. Most of the work of the research division is executed in this laboratory.

The research and service activities of the laboratory have been financed largely by grants-in-aid.

The finances of the research laboratory are inadequate and deserve careful study and reevaluation in terms of primary functions, particularly the encouragement and inspiration of faculty, graduate students, and undergraduate students to participate in research. Facilities and funds are needed so that they can do good investigative work. Space is of primary importance in this instance; in fact it is a virtual prerequisite to any application for government grants-in-aid.

The activities of the laboratory during the past year include: the effect of estrogen on the teeth and supporting structures of rats, Dr. Gottsegen; the effect of biotin and pantothenic acid deficient diets on the teeth and supporting

structures of rats, Dr. Karshan and Dr. Stein; the effect of low protein diets on the teeth and jaws of rats, Dr. Stein; the effect of Vitamin C deficient diets and replacement therapy on the teeth and jaws of guinea pigs, Dr. Beube, Dr. Gottsegen, and Dr. Gorlin; histologic effects of orthodontic appliances on the periodontal bone of normal and thyroid deficient rats, Dr. Telsey; histologic findings in human tongues biopsied from individuals under nutritional survey, Dr. Stein; a histologic study of tumors produced in the jaws and oral cavity of mice, Dr. Levy, Dr. Gottsegen, and Dr. Gorlin; the effect of P<sub>32</sub> on the skeletal system of fish, Dr. Levy and Dr. Kitscher; an embryological study of the jaws of amblystoma, Dr. Levy and Dr. Detwiler; and the histologic effects of chemical carcinogens applied to amblystoma, Dr. Levy.

Occasional biopsies from dentists and physicians in practice are also processed through the laboratory. Since September, 1949, 370 tissues have been prepared for histologic study.

#### DIVISION OF STOMATOLOGY

This Division operates under the direction of Professor Lewis Stowe and for the purposes of teaching is subdivided into sections of diagnosis, radiology, and periodontology. Diagnosis and radiology are directed by Professor Edward V. Zegarelli. Periodontology is directed by Professor Frank E. Beube.

In addition to the undergraduate teaching, three certificate students and thirty postgraduates completed their training. This marks the last year that certificates of training will be granted after one year of attendance, although students will be accepted for this period and may receive credits for work completed. To obtain certificates, two years' work will be required in the future.

The various members of the periodontia staff have been actively engaged during the past year with the presentation of various lectures and courses at many dental societies throughout the country. Dr. William Themann participated in a symposium on "The Occlusal Factor of Periodontal Disease" which was published in the *Journal of Periodontology* (April, 1950). Dr. Leonard Hirschfeld has in press an article titled "The Use of Wire and Silk Ligatures." Dr. Melvin Morris has written an article on "Reattachment of Periodontal Tissue" which was published in the *Journal of Oral Surgery, Oral Medicine, and Oral Pathology* (September, 1949).

Two phases of the "Study of Capillary Fragility" in patients and guinea pigs have been completed. Vitamin C and Vitamin P were used in the treatment. The impression drawn from the treatment of scorbutic animals seems to be that the combination of Vitamins C and P is beneficial to the repair of tissues. This investigation is being carried on by Professor Frank E. Beube and Dr. Robert J. Gorlin, Dr. Robert Gottsegen, and Dr. Ellen N. Hosiosky.

Work is continuing on the studies of cementomas and idiopathic cysts of the mandible and various soft tissue lesions of obscure etiology.

Diagnosis and Radiology staff meetings are being held regularly on the first Thursday evening of each month during the scholastic year. Guest speakers have been selected from many of the departments concerned with problems of direct bearing in this field.

The Diagnosis seminar course was given for both the postgraduate certificate and senior undergraduate students. Twenty-one postgraduate students registered in orthodontic, restorative, and periodontia courses, together with one student registered in diagnosis, attended thirteen sessions. The senior students were limited to ten sessions last year, but are scheduled for thirteen sessions the coming year.

#### DIVISION OF DENTAL HYGIENE

Courses for dental hygienists, under the direction of Professor Frances A. Stoll, registered ten students for the class of 1950, and fourteen students for the class of 1951. Candidates were enrolled from four states, Puerto Rico, and Canada.

Two clinics were in operation during the year to provide clinical practice in dental prophylaxis for students. The Dental School Clinic was supervised by Miss Barbara Fink and the Clinic at 15 Amsterdam Avenue by Miss Evelyn Hannon.

In addition to the regular prophylaxis service, series of four sodium fluoride applications were given to sixty-nine children from the New York Foundling Hospital. Extensive alterations and improvement of the clinic facilities have improved teaching and services rendered at the Amsterdam Avenue Clinic.

During the 1950 Spring Session, senior students were assigned to schools in Nassau County in which dental health programs were in progress under the direction of competent dental hygiene teachers. Five participating teachers were chosen from the schools of Hempstead, Lynbrook, Elmont, New Hyde Park, and Sewanhaka High School, Floral Park. Each teacher supervised two students for three full-day sessions.

At the time of this report, all students of the senior class upon graduation will be placed in positions at good salaries. There are many more positions offered than can be filled in public health, private dental offices, school positions, and clinical and institutional work.

Faculty and students of the courses for dental hygienists have undertaken the study of state dental laws pertaining to the practice of dental hygienists and are preparing a comprehensive digest of the laws which is to be published in the *Journal of the American Dental Hygienists Association* during 1950-1951. This digest is the first to be compiled since the licensing of dental hygienists in 1919. It will show in tabulation form the comparison of all the areas of the laws in 46 states.

## DEPARTMENT OF DERMATOLOGY

Professor A. BENSON CANNON, Executive Officer

In the undergraduate teaching of dermatology during the past year a series of Friday morning sessions with the fourth-year students was introduced. Each of these was devoted to a single subject, in the form of lectures and ward rounds demonstrating the cutaneous manifestations of internal disease. A session was held in the Syphilis Clinic with training in the administration of intramuscular injections, and a morning was spent in the Treatment Clinic observing techniques of electrodesiccation, scarification, and other physical modalities employed in dermatology. Both third- and fourth-year students were taken to City Hospital for special clinical conferences illustrating types of cutaneous diseases treated more frequently in municipal hospitals.

The Department was host to the Laboratory and Epidemiology Sections of the American Public Health Association at its Annual Meeting on October 26, 1949. Professor Harold W. Brown of the School of Public Health scheduled the morning lectures and Professor Rhoda W. Benham organized demonstrations and exhibits for the afternoon sessions. The meeting was well attended and the presentation of material declared unique by the members of the Association.

The annual syphilis symposium for the fourth-year students this year included an afternoon on experimental syphilis, which proved a most popular addition. Dr. Robert A. Nelson, Jr., of Johns Hopkins, described his treponemal immobilization test, which promises to revolutionize the differential diagnosis of syphilis, as the first specific diagnostic test for syphilis to be devised. A grant from the New York State Department of Health has enabled the laboratory to carry on research in this test, with the cooperation of the originator.

The Department in December published the first issue of *The Biopsy*, which now seems securely established. The mailing list is nearing the two thousand mark, with subscriptions and voluntary contributions coming in from all parts of this country and Canada, and from as far beyond as Hawaii and Norway. Several branches of the Government services have officially requested subscriptions.

Professor Cannon is completing a motion picture on "The Management of Precancerous and Cancerous Lesions of the Skin," scheduled for presentation at the American Academy of Dermatology and Syphilology in December. With Professors Hopkins, George C. Andrews, Paul Gross, and other members of the staff, he has been studying the effects of ACTH and cortisone in pemphigus vulgaris and of cortisone in severe allergic dermatitis and in acute lupus erythematosus.

Professor Benham is engaged in morphologic studies of *Cryptococcus neo-*

formans with the phase microscope, and in particular the nature of the capsule and immune reactions. With Miss Margarita Silva, the investigation of the influence of nutrition on the growth and morphology of the dermatophytes continues under government grant. Dr. Elizabeth L. Hazen is working on the nutritional requirements of *Microsporum audouinii*.

Professor Andrews has been studying the erythema dose of soft radiation and, besides the ACTH and cortisone projects, is investigating the effectiveness of thorium-x in mycosis fungoides and nevus flammeus, with Dr. Domonkos and Dr. Post.

Professor Beatrice M. Kesten, with Dr. F. Fox Miller, has been studying skin sensitivity to light, and particularly solar urticaria, determining the length of light waves responsible for the cutaneous reaction by means of glass filters, chemical sun screens, and passive transfer tests.

Professor Theodore Rosenthal has completed a comparison of the treatment of early syphilis with penicillin alone, and with penicillin, mapharsen, and bismuth, and read a paper on the subject in June, 1950, at the annual meeting of the American Dermatological Association.

Professor J. Lowry Miller, with Dr. Meyer Slatkin, continues the systematic study of the newer antibiotics in the local therapy of the pyodermas.

Dr. Carl T. Nelson is endeavoring to determine the role of phosphatids in the production of sarcoid-like tissue responses, with quantitative studies on the phosphatid content of sarcoid tissue. He is also investigating electrolyte changes of the tissues in experimental anaphylaxis and allergy.

Dr. Helen O. Curth's grant from the American Cancer Society for her work in acanthosis nigricans has been renewed, and her exhibit on Aphthosis before the Medical Society of the State of New York won Honorable Mention in Clinical Research.

Dr. James R. Trimble continues his work on the occurrence of cryptococcosis in certain lymphoblastomas and showed an exhibit on cryptococcosis before the Annual Meeting of the American Public Health Association.

Dr. Donald Rosman has been injecting into the central nervous systems of laboratory animals certain ordinarily saprophytic fungi, a species of *Fusaria* and *Alescheria boydii*, recovered from the spinal fluid of two patients, in an attempt to determine whether these organisms can become pathogenic.

Members of the Department, including Professor Andrews, Dr. Nelson, Dr. Lowenfish, Professor Rosenthal, and Dr. Milton B. Sloane, have responded generously to outside requests to participate in important courses and seminars and scientific sessions.

Dr. Roland Riddell of England worked with Professor Benham for six months and then returned to take up the Directorship of the Department of Mycology of the London School of Hygiene and Tropical Medicine.

During the year Dr. Paul Gross was advanced from Assistant Clinical Pro-



fessor to Associate Clinical Professor, Dr. Theodore Rosenthal from Instructor to Assistant Clinical Professor, and Dr. William Huber from Assistant to Instructor.

## DEPARTMENT OF MEDICINE

Professor ROBERT F. LOEB, Executive Officer

During the past year Professor Arthur J. Patek resigned to become Professor of Medicine at Western Reserve University and Director of the Medical Service at Mt. Sinai Hospital in Cleveland. Dr. John S. Poe, Research Assistant in Psychiatry, assigned to Medicine, resigned to become Professor of Psychiatry and head of the Department of Neuropsychiatry at the University of Arkansas School of Medicine. His sudden death in April was a shock to his former colleagues here. Dr. Robert C. Krueger, Research Associate in Biochemistry, assigned to Medicine, has resigned to become Assistant Professor of Biochemistry at the University of Cincinnati. Professor Frederick R. Bailey, after serving as Chief of the Medical Clinic at Vanderbilt Clinic, where he has been in charge of teaching in medicine for many years, has relinquished this activity.

Dr. Joseph C. Turner has been promoted from Assistant Professor of Medicine to Associate Professor of Clinical Medicine. Dr. John V. Taggart, a Welch Fellow, has been promoted from Associate to Assistant Professor of Medicine. Dr. Theodore B. Russell has been promoted from Associate to Assistant Clinical Professor and will replace Professor Bailey as Chief of the Medical Clinic at Vanderbilt Clinic. Dr. William B. Sherman has been promoted from Associate to Assistant Clinical Professor. Dr. Joseph W. Jailer was appointed Associate in Medicine, assigned to the Department of Obstetrics and Gynecology. During the past year a number of foreign Fellows and scientists have been guests of the Department. These have included Dr. Alfred J. Spencer, Bolton Pollard Fellow of University Hospital Medical College in London; Dr. Fred-eric Stephan of Strasbourg, France, and Dr. Wladystaw Manski of Poland, who were Fellows of the Rockefeller Foundation; and Dr. Robert Castaing, Dr. Henry C. Deschamps, and Dr. Jean Louchart, Scholars of the French Government, and Dr. Jon Jonson, visiting investigator from the University of Oslo, Norway. In addition, there have been in the Department of Medicine a number of Fellows of the National Research Council, the United States Public Health Service, the Life Insurance Medical Research Fund, the John and Mary R. Markle Foundation, the American Heart Association, the American Cancer Society, the Commonwealth Fund, and the New York Heart Association.

In the past year two elective courses in medicine which have met with a most enthusiastic reception have been added to the medical curriculum. One of these dealt with medical biochemistry and was organized by Dr. DeWitt

Stetten, Dr. London and Dr. Taggart, both of the Department of Medicine, gave the lectures. The other course was devoted to the subject of "Cardio-respiratory Physiology in Man." This was arranged by and given under the direction of Professor André Cournand and Professor Dickinson W. Richards, Jr.

A number of distinguished guest lecturers participated in the Saturday Combined Clinics. These included Professor John McNee, Regius Professor of Medicine at the University of Glasgow; Professor Manfred Mayer, formerly of the Department of Medicine and now at Johns Hopkins University; Professor Robert Ward of New York University; and Dr. Stanley Sarnoff of Harvard Medical School. The first Randolph West Memorial Lecture was delivered this year. The incumbent of the lectureship was Professor Alastair Frazer, Professor of Pharmacology at the University of Birmingham, England.

The emphasis in undergraduate teaching in the Department of Medicine continues to be upon instruction in small groups. The wards and clinic must continue to be the counterpart of the laboratory in the basic sciences. Students are taught in their third-year clerkships with one instructor for four or five students. In the clinic there is one instructor for two students. This type of teaching permits full and unhurried discussion of disease mechanisms and the diagnosis and management of the patient. Obviously this approach to pedagogy requires a large, well-trained and highly competent staff of instructors. No system of teaching in large groups or extensive program of didactic lectures can afford the student a comparable opportunity in his training in the fundamentals of internal medicine. No serious consideration can conceivably be given to the too frequent suggestion of training two categories of physicians, i.e., the good and the less good. Maintenance of the highest standards of medical education essential for training physicians in internal medicine is inescapably bound to an active program of research covering a broad range of interests. The products of this basic research have found continuous application in medical practice. Obviously the lag in application is immeasurably shortened by close integration of research, teaching, and practice. Furthermore, the objectivity inherent in research is best extended to teaching and patient care in an atmosphere permeated by those processes of critical thought upon which sound creative research is based. Curtailment of funds for investigators or investigation would have immediate and serious repercussions in the primary function of the Department of Medicine, namely, the training of the student in internal medicine. A significant increase in financial assistance is essential to keep pace with the rapid developments in this field of the medical sciences.

During the past year 125 publications have appeared from the Department of Medicine. In addition to investigative programs embracing a variety of disciplines, it is natural that considerable interest should have been exhibited in

the mechanism of action and the therapeutic effects of adrenocorticotrophic hormone (ACTH) and cortisone. The studies of these substances have in many instances been greatly facilitated by interdepartmental collaboration. Professor Charles A. Ragan, Professor Karl Meyer, and Dr. Charles M. Plotz have demonstrated, with the cooperation of Professor Edward L. Howes, Professor Raffaele Lattes, Dr. J. William Blunt, of the Department of Surgery, and Professor Margaret Bevans, of the Department of Pathology, that these compounds have a striking and highly significant effect upon the response to injury on the part of mesenchymal elements, notably fibroblasts and new blood vessels. The normal proliferation of these tissues is markedly delayed by these agents but not by a large variety of steroids which are without therapeutic effect in human disease. Professor Meyer, with Dr. Ira S. Jones of the Department of Ophthalmology, has also shown a local inhibitory effect of cortisone on new blood vessel formation in the rabbit eye in response to injury. These studies strongly suggest that at least part of the therapeutic activity of cortisone and ACTH, in a wide variety of diseases, depends upon the inhibition of mesenchymal reactivity by the induction of the hyperadrenal state. Dr. Edward E. Fischel, with Dr. Mogens Björneboe of the University of Copenhagen, has demonstrated that ACTH and cortisone depress the level of the circulating antibody resulting from vaccination with pneumococci. Dr. A. G. Spencer found that cortisone, but not DCA of "Compound A," inhibited "spreading" induced by hyaluronidase. Dr. Abbie I. Knowlton, Dr. Emily N. Loeb, Professor Beatrice C. Seegal of the Department of Bacteriology, and Dr. Herbert C. Stoerk of the Merck Institute found no inhibition in the establishment of cytotoxic serum nephritis in rats by large doses of cortisone. Clinical studies on the effects of these hormones have been carried out by Professor Ragan, Professor Franklin M. Hangar, Professor Ralph H. Boots, Professor Sidney C. Werner, Professor Joseph C. Turner, Dr. Plotz, Dr. Stuart W. Cosgriff, Dr. Kermit L. Pines, Dr. Albert W. Grokoest, and Dr. George Collins, in conjunction with numerous members of the staffs of other Departments.

Dr. Marcel Goldenberg and Dr. Henry Aranow, Jr., have extended their studies on the diagnosis of pheochromocytoma by the blocking action of benzodioxane and the effect of this compound on hypertension induced by epinephrine and nor-epinephrine. They have also studied the possible role of the latter catechols in inducing essential hypertension. Dr. Goldenberg has also extended his observations on the chemical determination of epinephrine and nor-epinephrine in normal adrenal glands and in tumors of these structures.

Professor Stanley E. Bradley, with Professor David V. Habib and Professor Emanuel M. Papper of the Department of Surgery, has studied renal and hepatic function during anesthesia and operation. Pentothal and cyclopropane reduce renal blood flow, glomerular filtration, and the excretion of water and

electrolytes. They also reduce hepatic blood flow. With Dr. Archibald MacPherson and Dr. Allan Gammeltoft of the Department of Surgery, Professor Bradley has found that porto-caval anastomosis in man results in a decrease in hepatic blood flow and augmentation of oxygen extraction. While working at the Mt. Desert Island Biological Laboratory, Professor Bradley, in collaboration with Dr. Gilbert H. Mudge and Dr. William D. Blake, studied renal function in the harbor seal in response to diving. Dr. Preston Lowrance, Markle Scholar from the University of Virginia, and Professor Bradley have embarked on studies of water and electrolyte distribution in uremia.

Dr. Taggart, Dr. Mudge, and Dr. Lillian Recant have continued studies on the metabolic processes associated with cellular transport mechanism in the kidney. Various enzyme systems which appear to play important roles in the tubular secretion of such substances as p-aminohippurate, diodrast, phenol red, and penicillin were examined. In addition, studies were undertaken on the metabolic reactions which control the movement of electrolytes across cell membranes.

Dr. John R. West and Dr. Harry A. Bliss have been attempting to define further the patterns of pulmonary dysfunction in various forms of chronic lung disease. Pulmonary fibrosis exhibiting alveolar-respiratory insufficiency has been a particular interest. They have also studied methods for prompt reduction of peripheral vascular resistance to assist in differentiating pure stenotic disease of the mitral valve from cases of mitral insufficiency exhibiting left ventricular failure. This is of importance in the selection of patients who may be benefited by surgery of the mitral valve. They have also made significant improvement in methods for recording intracardiac pressures and have continued cooperation with the Departments of Surgery and Pediatrics in the study of patients with congenital heart disease.

Professor René Wégria with Dr. Charles W. Frank, Dr. George A. Misrahy, Dr. Leonard S. Sommer, Dr. George McCormack, and Mr. Robert S. Sioussat have developed a new technique for continuous recording of the cardiac output in the dog. In addition to this measurement, they have simultaneously determined coronary blood flow and mean arterial blood pressure in order to study the hemodynamic effect of various arrhythmias, as well as a number of drugs. Dr. Richard J. Stock, in collaboration with Dr. Mudge, has been carrying out detailed electrolyte balance studies and skeletal muscle analyses in patients undergoing treatment for congestive heart failure. Dr. Stock, Dr. Richard B. Duane, and Dr. Count D. Gibson have studied the clinical course of patients with bacterial endocarditis who have been cured with antibiotic agents. Professor Robert L. Levy, with Dr. Harold I. Griffeath, Dr. James A. L. Mathers, and Professor John L. Nickerson of the Department of Physiology, have been studying the ballistocardiographic patterns in congestive heart failure and after recovery. This group has also studied the effect

of standardized exercise on the ballistocardiogram in healthy individuals and in patients with diminished cardiac reserve. Professor Levy, Professor Howard G. Bruenn, Dr. Mathers, and Professor John W. Fertig of the Department of Public Health have made a study of a large series of patients on whom Professor Levy's anoxemia test has been done in the past ten years.

Professor Alvan L. Barach, in collaboration with Dr. Hylan T. Bickerman and Dr. Gustave G. Beck, has continued the "remissive" treatment of bronchial asthma. This group has also studied, at the Medical School and at Goldwater Memorial Hospital, the effects on the circulation of the continuous pressure-breathing treatment of bronchial asthma. They have also studied certain physiological responses in patients in the immobilizing lung chamber, viz., ballistocardiographic patterns and serum and urine potassium levels.

Professor Michael Heidelberger and his associates have continued their basic studies in the field of immunochemistry. Dr. Robert C. Krueger has demonstrated that the removal of lipids from horse antiserum to rabbit globulin gives rise to a change in the quantitatively determined characteristics of the antibody. With Mr. Paul H. Maurer, Professor Heidelberger determined the contribution of certain amino groups in egg albumin to the configurational stability of this molecule. With Mrs. Marie M. De Lapi, Professor Heidelberger showed that the sera of individuals injected with type-specific pneumococcus polysaccharide still showed, eight years after the injection, as much as 20 to 50 percent of the maximal antibody level achieved. Further studies indicated that this was probably due to persistence of the polysaccharide in the body. Dr. Jon Jonson, Dr. Wladystaw Mánski, and Professor Heidelberger have now separated the third component of complement from the others in relatively purified form. Professor Heidelberger has also begun immunochemical studies on the purified milk factor of mammary carcinoma.

Professor Yale Kneeland and Professor Harry M. Rose have carried out, with Dr. Gibson and Dr. George Melcher, studies on the antibiotic effect to terramycin on pneumococcal and primary atypical pneumonia. Professor Kneeland and Mrs. Katherine Mills Price have studied the mechanism of action of aureomycin and terramycin in experimental feline pneumonitis infection. Mrs. Price has also studied the anti-viral effect of certain specific chemicals, notably certain aldehydes. Professor Rose has extended his studies on rickettsialpox and has now found that, contrary to earlier belief, a certain number of patients with this infection develop agglutination reactions with proteus OX19. He has also shown in man, as well as in mice and chick embryos, that certain antibiotics, notably terramycin, have a therapeutic effect. Professor William B. Sherman has made an extensive study of cold allergy and has demonstrated its passive transfer. He is studying the effect of varying concentrations of antigen and antibody in the phenomenon of passive transfer. He is also attempting to develop a method for detecting the allergy blocking

antibody by an *in vitro* test employing collodion particles coated with ragweed antigen and rabbit anti-ragweed serum. Dr. Daniel L. Larson has extended his observations on antibody formation in the leukemias, lymphomas, and other malignancies. He has also demonstrated the presence of free specific polysaccharides in the spinal fluid of patients with pneumococcal meningitis. In addition, he is developing a method for the determination of C reactive protein in human serum.

Professor Karl Meyer and Dr. Maurice M. Rapport have continued their studies on the chemical nature of ground substances of connective tissue. Their development of an ultramicro method for the determination of reducing sugar has proven of great value in the study of the mode of action of hyaluronidase on hyaluronate. Changes in loose connective tissue, effective by testicular hyaluronidase, can be demonstrated histologically. Apparently this tissue does not contain hyaluronic acid since this compound was not found in extracts of tendon, heart valves, or the large blood vessels. These tissues contain instead two different sulphated mucopolysaccharides with widely different constants. One of these is hydrolysed fairly rapidly by hyaluronidase and the other is resistant to the action of the enzyme. Umbilical cord contains hyaluronic acid and the enzyme-susceptible sulphated compound.

Dr. Irving M. London, in conjunction with Professor David Rittenberg and Professor David Shemin of the Department of Biochemistry, has continued studies on porphyrin and protein metabolism. The rates of formation of uroporphyrin I, coproporphyrin I, and protoporphyrin IX and the metabolic origin of bile pigment have been studied in a subject with congenital porphyria. Dr. London, in collaboration with Professor Ragan and Professor George A. Perera, has studied the rate of protein synthesis in a variety of disorders, including patients receiving ACTH and cortisone.

Professor Perera and Dr. Pines have extended their studies on the natural history of hypertensive vascular disease and the possible relationship of this disorder to the adrenal cortex. They have found that ACTH causes a variable increase in blood pressure through changes in peripheral resistance. They have determined that cortisone tends to lower the blood pressure in essential hypertension and that withdrawal of this hormone may result in temporary hypoadrenalism. It appears that the effect of cortisone in renal hypertension may be different from that in essential hypertension. Of a variety of other steroids studied, only Compound S appeared to have any pressor effect. Professor Perera and Dr. Pines are continuing their observations on the effect of thiocyanates on sodium excretion by the kidney.

Dr. Knowlton and Dr. Emily Loeb, together with Professor Seegal and Dr. Stoerk, have definitely established that hypertension can be induced in totally adrenalectomized rats rendered nephritic by a cytotoxic serum. They have also demonstrated that cortisone, like desoxycorticosterone, enhances hy-

pertension in the normal and adrenalectomized rats. Dr. Knowlton, with Dr. Jailer, in the course of the study of a pregnant Addisonian patient, has gathered convincing evidence for the view that the placenta is the source both for an ACTH-like substance and a substance with qualities like certain adrenal steroids.

Professor Ragan, Professor Boots, and other members of the arthritis study group have continued their long-term follow-up of four hundred patients with rheumatoid arthritis. In addition, studies have been in progress with Professor Rose to determine the mechanism involved in the sensitized sheep cell agglutination which they have found characteristic of rheumatoid arthritis. Dr. Fischel, in conjunction with Professor Meyer, has demonstrated antigenic properties in a preparation of mucoid from heart valve.

Professor Hanger and Dr. Collins have studied the effect of cortisone in non-toxic hepatitis and cirrhosis of the liver. Professor Hanger, with Professor Werner and Dr. Robert A. Kritzler, has reported a characteristic form of liver disease developing after the prolonged administration of methyl testosterone. Professor Joseph C. Turner and Miss Barbara Mulliken have continued their studies on the effect of extraneous viruses on the growth of neoplasms in animals. A number of tumors have been inhibited by vaccinia virus, but complete arrest of tumor growth has not been achieved. In the course of these studies, Dr. Kritzler has come upon a hitherto undescribed pox virus in mice which belongs to the general family of *Vaccinia-Ectromelia*. Professor Turner and Professor Ragan have also studied the ameliorating effect of ACTH and cortisone on thrombocytopenic purpura of different origins.

Professor Alfred Gellhorn and Dr. Daniel Shapiro have devoted their major effort to the study of certain combinations of carinostatic agents in a broad spectrum of tumors in experimental animals. Professor Gellhorn has also continued the clinical evaluation of a variety of drugs in the therapeutic management of malignant disease. Professor Robert C. Darling has studied the gas combining properties of red blood cells and the hemoglobin in patients with sickle cell anemia. He has also studied the shift of water out of the blood during exercise in athletes in training as compared with non-athletes. Professor Kenneth B. Turner has carried out observations on the enzyme present in peripheral blood which is capable of esterifying cholesterol *in vitro*. Dr. Stuart W. Cosgriff has demonstrated a striking effect of ACTH and cortisone on the blood clotting mechanisms. He is also extending his studies on the significance of fibrogen B in thromboembolic disease and is continuing the study of the critical evaluation of anticoagulants in thromboembolic disease. Dr. Cosgriff has also continued as Medical Adviser to the House Staff Educational Plan and has helped to establish and organize training programs in thirteen non-university affiliated hospitals.

Professor Werner has extended studies with radioiodine as a tracer test.

This has resulted in the introduction of this test for the clinical screening of diseases of the thyroid gland. It has displaced the basal metabolism test for this purpose in most cases. Professor Werner and Dr. Howard Hamilton have demonstrated with measurements of radioiodine uptake and serum precipitable iodine determination that hyperthyroidism occurs not infrequently in the presence of normal basal metabolic rates. Professor Werner has also studied the effect of ACTH in hyperthyroidism and chronic thyroiditis.

Professor Charles A. Flood and Dr. George C. Hennig have completed an extensive, long-term, follow-up study of the results of medical treatment of gastric ulcer.

Professor William H. Sheldon has published a book entitled, *Varieties of Delinquent Youth*, based on a ten-year follow-up of two hundred subjects. He has completed the manuscript for somatotyping men in which will be summarized all the classified variations of about 55,000 individuals all of whom were photographed and somatotyped by the Constitution Laboratory. Professor George A. Daniels reports that his integrated group including Dr. Aaron Karush, Dr. Harvey Corman, Professor John S. Lockwood, and Dr. Robert B. Hiatt, of the Department of Surgery, have made significant advances in their studies on the motility, vascularity, and secretory activity of the colon in ulcerative colitis during psychotherapy. Dr. Kenneth Kelley, Dr. Ruth Easser, Dr. John S. Poe, and Dr. Russell R. Monroe have correlated physiological, endocrine, and psychological components in patients with secondary amenorrhoea. Dr. Felix Hoffman has been interested in the psychological implications of menorrhagia.

At the Goldwater Memorial Hospital a most active research program has been in progress. Professor Forrest E. Kendall and Professor Margaret Bevans of the Department of Pathology, with Dr. Alfred Steiner and Dr. Jack D. Davidson, have expanded their dog colony to sixty-four for the study of experimental arteriosclerosis which they have been able to induce in these animals. Studies on the role of lipotropic factors in the prevention and cure of this disorder are well under way as are studies on the cholesterol-phospholipid ratios in the blood. Studies have been made of these ratios in the rabbit, the dog, and in man in relation to the development of arteriosclerosis. The low ratios in man may be related to his tendency to arteriosclerosis. Lipotropic factors do not appear to influence the ratios in man.

Professor Alexander B. Gutman and Dr. Donald M. Watkins, Dr. Herman F. Froeb, Dr. Frederick T. Hatch, and Dr. Harold B. Trachtenberg have completed the second year of the intensive and minutely controlled study of the rice diet in hypertensive vascular disease. Effects on blood pressure, heart size, eye ground changes, serum cholesterol, cardiac output, specific renal functions, body water, and adrenal function have been made. Professor Gutman and Dr. Yü T'sai Fan have continued their studies on gout, emphasis having



been placed on the uricosuric activity of salicylates, colchicine, carinamide, ACTH, and other agents. Professor Gutman and Dr. Yü have also made progress in clarifying the role of enzyme in the calcification of cartilage. Professor Robert W. Berliner and Dr. Thomas J. Kennedy, Dr. James C. Hilton, and Dr. Morton C. Creditor have continued their studies on renal excretion of electrolytes. Studies have also been made to determine the mechanism of action of mercurial diuretics and observations have been made on the effect of ACTH on renal function. Professor Patek and Dr. Irvin C. Plough, in addition to the continuation of their studies on cirrhosis of the liver in man, studied the prevention and cure of induced nutritional cirrhosis in rats by the administration of choline.

On the First Medical Division and the Chest Service of Bellevue Hospital, Professor Dickinson W. Richards and Professor J. Burns Amberson report a gratifying continuation of research activity. Professor André Cournand and his associates have completed a comprehensive study of *cor pulmonale* and the responses to digitalization. Professor Cournand has also carried out observations of pulmonary and cardiac function in a wide variety of disorders of the heart and lungs. The effects of cortisone have been studied in patients with pulmonary scleroderma and in diffuse pulmonary granulomatosis. Visiting Fellows, including Dr. Douglas Carroll from Johns Hopkins University, Dr. John Douglas from London, Ontario, and Dr. Alfred P. Fishman, have collaborated with Professor Cournand as have Dr. M. Ireneé Ferrer and Dr. Réjane M. Harvey. Dr. Richard T. Cathcart and Dr. William W. Field have carried out comparisons of cardiac output by means of the direct Fick method and the Nickerson ballistocardiograph and have concluded that the latter does not measure cardiac output either in absolute or relative terms. Dr. Cathcart and Dr. Field are at present comparing the Hamilton dye method with the Fick method for measuring cardiac output. Dr. William H. Stearns, with Professor Amberson, is continuing the evaluation of combined streptomycin and para-aminosalicylic acid therapy in pulmonary tuberculosis, particularly in its acute form. Professor Julia M. Jones is continuing her study of the natural history of pulmonary tuberculosis developing in a large group of student nurses.

During the past year distinctions have come to many members of the Department of Medicine. Among them may be included the following: Professor Heidelberger was awarded the Legion of Honor by the French Government. He also received the degree of *doctor honoris causa* from the University of Paris and from the University of Upsala, Sweden. He was also vice president of the American Association of Immunologists. Professor Cournand was the recipient of a Lasker Award from the American Public Health Association. He also gave the Walter Wile Hamburger Memorial Lecture in Chicago. Professor Cournand and Professor Robert F. Loeb were elected foreign cor-

responding members of the Société Médicale des Hopitaux de Paris. Professor Loeb was also made president of the Harvey Society. Professor Ragan was the recipient of the Joseph Mather Smith Prize at Columbia and continued as Secretary of the American Rheumatism Association. Professor Bradley joined the Editorial Board of the *American Journal for Clinical Investigation* and Dr. Sherman was elected editor of the *Journal of Allergy*. Professor Gutman became chairman of the Section on Medicine at the New York Academy of Medicine. Professor Boots was made a director of the Arthritis and Rheumatism Foundation and a member of the Scientific Advisory Board of the Masonic Foundation for Medical Research and Human Welfare. Professor Flood was elected president of the New York Gastroenterological Society and vice president of the American Gastrosopic Society. Professor Levy was chairman of the Subcommittee on Cardiovascular Disease of the National Research Council and was made an editor of the *American Heart Journal*. Professor Perera joined the Endocrine Committee of the Committee on Growth of the American Cancer Society. Dr. London became the recipient of a Welch Fellowship from the National Research Council and Dr. Larson was awarded a John and Mary R. Markle Foundation Scholarship for five years. Dr. Taggart delivered the annual Sigma Xi lecture at New York University.

The program in physical medicine and the courses in physical and occupational therapy have been severely affected by the building alterations but have continued to function without interruption.

Changes in the medical staff during the past year included the resignation of Dr. Eugen Wessenberg from the Department to take the position of Chief of Physical Medicine, United States Veterans Hospital at Jefferson Barracks, Missouri; the designation of Dr. Morton Hoberman as Chief of the Physical Therapy Clinic at Vanderbilt Clinic and the appointments of Dr. Kathryn McMorrow as a resident in physical medicine and Dr. Olav Austlid as a Fellow in physical medicine.

In the fall of 1949 the physical medicine staff participated in various group teams for the treatment of the poliomyelitis patients. Teams operated in Babies Hospital, Presbyterian Hospital, and the Neurological Institute. On discharge from the hospitals, all polio patients were referred to a newly established Polio Follow-up Clinic operated jointly by the Departments of Orthopedics and Physical Medicine. This clinic will continue permanently in Vanderbilt Clinic and now cares for all poliomyelitis patients who receive active treatment or follow-up care. The Pediatrics Cerebral Palsy Group Clinic at Vanderbilt Clinic received a renewal of the grant from the New York Cerebral Palsy Association.

The physical medicine staff in the Neurological Institute has been actively cooperating with the Nursing Education Department in various symposia concerned with rehabilitation of patients. A committee has been working with

the Department of Nursing to develop nursing procedures for the rehabilitation of certain neurological conditions, particularly hemiplegia, paraplegia, ataxia, and spasticity.

Professor Robert C. Darling has continued to integrate the physical medicine program at the Medical Center and his help has been invaluable in unification of effort and accomplishment. Professor William B. Snow has directed the courses in physical and occupational therapy through a year made difficult by the building program. Nevertheless, important advances have been made in the course curricula and in the fuller realization of the opportunities available at the Institute for the Crippled and Disabled. His report follows in two subsections.

#### PHYSICAL THERAPY

During the academic year of 1949-50 there was a total enrollment of fifty students. In addition, we accepted a special student from Palestine for training to equip her to be of service to her country. In June, 1950, eleven students qualified for the Bachelor of Science degree. In the August class, seventeen qualified for the Certificate of Proficiency in Physical Therapy.

The programs of occupational therapy and physical therapy continue to operate in a cooperative manner. It is felt that the influence of this type of organization is beneficial to the student in preparing him for cooperative work on a hospital staff.

With the expanded use of the Institute for the Crippled and Disabled for clinical and laboratory teaching, the lecture room on the eighth floor has been allocated to Columbia University for classes in both occupational therapy and physical therapy. Purchase of important teaching materials was made possible by the gift from the Baruch Committee on Physical Medicine. The Institute is furnishing folding chairs in place of the lecture-room armchairs and thus the room is useful for lecture, laboratory work, or gymnasium. This year the following classes have been taught there: kinesiology, massage, therapeutic exercise, relaxation, orthopedics, rehabilitation, and recreation.

Students in these classes are well accepted by the Institute Staff and have enjoyed increasing participation in regular Institute activities. Two special events, Institute Day and the boat party on August 2, furnished them unusual opportunity for being with large numbers of disabled people in a situation where each one had to make his adjustment in the use of standard facilities for daily living, which are not especially constructed for the disabled.

Two new courses were added this current year in relaxation and physical therapy theory. These proved valuable to the students and it is expected that the offering in each course will be even better next year.

New students entering this fall in the first year of the two-year program will be scheduled for a period of clinical practice and clerkships in the summer of

1951. Heretofore, these students have been on vacation from us for about four months. Three new affiliations for clinical training have been approved at the New York Hospital, The Kessler Institute for Rehabilitation, and St. Giles Hospital in Garden City (now affiliated with Vanderbilt Clinic in cerebral palsy), bringing the total to thirteen.

The lounge room for the girls in Bard Hall has greatly improved student life. Bard Hall also has accommodated the students for several social activities and the June graduates had luncheon there on Graduation Day.

Since 1947, the students have published a little newspaper, *The Synergist*. Heretofore, it has been mimeographed, but the students of the 1950 classes published the first printed issue.

To date, the Committee on Admissions has considered 153 applications, from which we have filled thirty-three of our thirty-five places in the fall class.

#### OCCUPATIONAL THERAPY

The school year of 1949-50 opened with seventy-four registrants, of whom twenty-five were in hospital affiliations. Of the forty-nine in school, thirty-eight were new admissions selected from a total of 103 applicants. The affiliating group of twenty-five completed the requirements of the Faculty of Medicine early in 1950, ten receiving the Bachelor of Science Degree and fifteen receiving the Certificates in Occupational Therapy. All of these graduates successfully passed the registration examination conducted by the American Occupational Therapy Association. A total of 223 graduates is now working in twenty-eight states, Poland, France, and Puerto Rico.

This past year has been indicative of a marked increase in applicants requesting scholarship aid. The diminishing G.I. benefits and increase in tuition and training costs probably account for this in part. With no University scholarship aid available for the coming year, we feel that we are faced with a serious problem.

The close affiliation of the College of Physicians and Surgeons with the Institute for the Crippled and Disabled has brought a number of beneficial curricular changes, as well as much-needed space. This latter included the establishment of a classroom at the Institute for the instruction of occupational therapy skills and the allocation of three adjoining rooms on the ninth floor. These were equipped with funds from the Baruch Committee on Physical Medicine and converted into a workshop and skills library for work previously conducted at Teachers College under crowded and inadequate conditions. This has resulted in improved instruction and student performance, with proper tools and equipment available in attractive, well-equipped, well-lighted and well-ventilated working space. In addition, it has been possible to give each student some experience in the general administration of a workshop. The selection of equipment and the instruction of students at the unit

has been under the direction of Miss Edith Brokaw, assisted by Mrs. Helen Rikoon. The unit has served an additional purpose in the postgraduate field in guiding therapists of the community and from all sections of the country in the best utilization of limited space.

This year marked the establishment of a program of clerkships for the degree students in occupational therapy. These opportunities for clinical training were organized in psychiatry, general medicine, surgery, pediatrics, and in physical disabilities and rehabilitation, each carrying two semester credits. The first one was carried out in the occupational therapy and recreation units of the New York State Psychiatric Institute and Hospital under the supervision of Miss Marguerite Vaughan and the occupational therapy staff; the second, in the occupational therapy units of the Columbia-Presbyterian Medical Center supervised by Mrs. Helen P. White, Director of Occupational Therapy, and by the Occupational Therapy staff; and the third, in the various treatment and training units of the Institute for the Crippled and Disabled and supervised by the various department heads. The clerkships were supervised and coordinated by Miss Marjorie Fish, Miss Marguerite Abbott, and Miss Marie Louise Franciscus. The program, although still experimental and in a formative stage, appeared to be highly successful and was enthusiastically received by the participating students.

Numerous conventions, conferences, and exhibits of allied professional groups were made available to our students during the academic year. Many noteworthy people have lectured to the student groups throughout the year, namely: Dr. Kathleen Cunningham, Surgeon and President of the Women's Medical Association, New South Wales, Australia; Mr. Willis C. Gorthy, Associate Director, the Institute for the Crippled and Disabled; Dr. Henry H. Kessler, Director, Kessler Institute for Rehabilitation; Miss Eva Otto, Educational Field Secretary, American Occupational Therapy Association; Mary Reilly, Captain, Women's Medical Speciality Corps, Assistant, Occupational Therapists Section, Office of the Surgeon General, Department of the Army; Miss Wilma West, Executive Director, American Occupational Therapy Association.

Following a two-year leave from the University, Miss Marjorie Fish returned to the staff in March, 1950, to resume her position as Director of Training Courses. Miss Fish brings to the professional program the wealth of her experience in Australia. Miss Marie Louise Franciscus, who has served as Acting Director during Miss Fish's absence, has continued on the staff as Associate Director. Miss Marguerite Abbott, who has accepted a challenging position as Executive Director of the Coordinating Council for Cerebral Palsy, will continue to serve as an instructor (part-time).

Staff members have been active in professional organizations, in committee work, and in lecturing to lay and professional groups. Miss Abbott has chaired

a committee of the American Occupational Therapy Association for the Establishment and Operation of Occupational Therapy Departments and also served as a member of the Board of Managers of the New York Occupational Therapy Association. She published, in March, 1950, an article entitled "Present-Day Trends in Cerebral Palsy." Miss Franciscus served as a member of the Professional Advisory Committee, Office of Vocational Rehabilitation, Federal Security Agency, and as a member of the Education and Registration Committees of the American Occupational Therapy Association. Miss Fish, Miss Abbott, and Miss Franciscus helped with the planning of and instruction in a two-week Institute offered by the New York State Department of Mental Hygiene for the supervisors of occupational therapy in the hospitals of the State Department.

## DEPARTMENT OF NEUROLOGY

Professor H. HOUSTON MERRITT, Executive Officer

The Department continues to carry its usual heavy load of teaching for the undergraduate students. The third-year elective course has been especially popular. The students in this course are given a comprehensive introduction to neurology on the wards at the Neurological Institute and the Montefiore Hospital for Chronic Diseases and in the outpatient department of the Vanderbilt Clinic.

Dr. Theodore J. C. von Storch joined the Department in July, 1949, as Professor of Clinical Neurology in charge of the teaching and research activities of the Department at the Montefiore Hospital. The undergraduate students in the second- and third-year classes receive a large part of their instruction at this hospital and a number of the postgraduate courses are also conducted by Professor von Storch and his staff. The research activities at the Montefiore Hospital have received a new stimulus with the appointment of Professor von Storch. Special studies have been made by Dr. Arnold P. Friedman on the mechanism of the head pains in patients with migraine and on the use of new compounds for the relief of the symptoms in patients with migraine and other forms of headache.

Professor von Storch has opened a clinic for the study of the disease multiple sclerosis. The work of this clinic is aided by a grant from the National Multiple Sclerosis Society. Studies are being made on the etiology, clinical course, pathology, and on the cerebrospinal fluid. Professor von Storch in collaboration with Dr. Tiffany J. Lawyer, Jr., and Dr. Albert H. Harris, of the New York State Department of Health, have found that a particular type of reaction in the colloidal gold is produced by the cerebrospinal fluid from almost all of the patients with multiple sclerosis.

At the Neurological Institute the clinical research activities have continued at a high level. Dr. Gilbert Glaser and Dr. Clark T. Randt have studied the effects of the adrenocorticotrophic hormone (ACTH) on various organic diseases of the nervous system, including multiple sclerosis, amyotrophic lateral sclerosis, and the muscular dystrophies. These studies were aided by grants from the National Multiple Sclerosis Society and the United States Public Health Service. Studies of the effect of ACTH on the electrical activity of the cerebral cortex and the mental state of patients with various diseases under treatment with this hormone were studied by Dr. Glaser and by Professor Paul F. A. Hoefer. Changes in the electroencephalograms, usually in the direction of a decrease in the frequency of the activity, occurred in the majority of the cases. Transient psychotic manifestations, some of a severe degree, developed in a small percentage of the cases.

Studies of the effect of new drugs on the symptoms in patients with Parkinsonism were made by Dr. Lewis Doshay, Dr. Kate Constable, Dr. Sidney Carter, and Dr. Daniel Sciarra. Dr. Doshay and Dr. Constable found that Artane (Trihexyphenidyl-3- $\alpha$ -piperidyl-1-phenyl-1-cyclohexyl-1-propanol hydrochloride) was more effective in relieving the symptoms than any other drug previously tested. Dr. Carter and Dr. Sciarra tested the effect of Parpanit (Caramiphen Hydrochloride) and found, contrary to previous reports of the literature, that it was relatively ineffective.

Clinical studies in the therapy of epilepsy were continued by various members of the Department. Dr. Carter and Dr. Sciarra tested the effectiveness of various new compounds. Their work was aided by grants from Parke, Davis and Company, The Abbott Research Laboratories, and the Benjamin Lazrus Foundation, Inc.

Dr. William Caveness has had considerable success in the therapy of patients with nocturnal seizures by the administration of a sympathomimetic drug, amphetamine sulfate. Dr. Caveness, together with Dr. Maurice Parsonage, Exchange Fellow from Guy's Hospital, London, England, and Miss Marjorie M. Edmond, is attempting to determine the mode of action of amphetamine sulfate by studying the electrical activity of the cerebral cortex during sleep, as shown in the electroencephalogram.

Dr. Glaser has administered ACTH to several patients with convulsive seizures without any appreciable effect on the frequency of the attacks.

Dr. Clark Randt and Dr. Saul Korey are conducting a study of the acetylcholine esterase content of the red blood cells in patients with myasthenia gravis, using the method developed in the laboratories of the Department by Dr. Schlomo Hestrin. They are attempting to determine whether this technique can be applied in the regulation of therapy of patients with this disease.

In the electroencephalographic laboratory at the Neurological Institute, Professor Hoefer and his associates have conducted a number of clinical and ex-

perimental studies. Professor Hoefer and Dr. Sidney M. Cohen have found that the level of spinal cord tumor can be localized by the occurrence in the electromyogram of abnormal discharges in the muscles innervated by the segment of the spinal cord at which the tumor is located. Professor Hoefer, together with Mr. Charles Markey and Mr. Robert L. Schoenfeld, has developed an instrument for the automatic analysis of the cortical activity as shown by the electroencephalogram. Other studies of the electroencephalographic laboratory include an analysis of the findings in patients with head injuries, brain abscess, and cerebral vascular accidents. Professor Hoefer, in collaboration with Dr. Sidney M. Cohen and Dr. David M. Greeley, has found that paroxysmal attacks of abdominal pain in children may be a manifestation of idiopathic epilepsy.

Studies on experimental disseminated encephalomyelitis in rhesus monkeys have been continued by Professor Elvin A. Kabat and his associates with the aid of grants from the National Multiple Sclerosis Society and the United States Public Health Service. Dr. Charles E. Lumsden of the University of Aberdeen, Scotland, spent six months in the laboratory as a Rockefeller Foundation Fellow and, in collaboration with Professor Kabat and Professor Abner Wolf of the Department of Pathology and with Miss Ada E. Bezer, has established that a variety of complement-fixing antibodies appear in the serum of monkeys injected with brain emulsions with adjuvants. These antibodies do not appear to be related to the constituent in the brain causing the encephalomyelitis. The effect of Cortisone on experimental disseminated encephalomyelitis is also being studied.

An analysis of the cerebrospinal fluid gamma globulin in one hundred cases of multiple sclerosis and in other diseases was carried out by Professor Kabat in collaboration with Dr. David E. Freedman, now at Tulane University, and with Miss Jean P. Murray and Mrs. Vesta Knaub. The study was published in the *American Journal of Medical Sciences*. Eighty-five of the multiple sclerosis cases showed an elevated gamma globulin. Determination of cerebrospinal fluid gamma globulin is now a routine procedure at the Neurological Institute.

Professor Kabat, in association with Dr. Harold Baer of the Department of Bacteriology and Professor Richard L. Day of the Department of Pediatrics, has continued studies on the immunochemistry of the blood-group substances. Professor Kabat, Dr. Harold Baer, Mr. Sam M. Beiser, and Miss Deborah Berg are carrying on further studies in this work. Dr. Fred Karush is spending six months in the laboratory to carry out studies on immunological specificity.

Professor Wolf and Professor David Cowen of the Department of Pathology, in collaboration with members of the staffs of the Departments of Neurology and Psychiatry and of the Neurological and Psychiatric Institutes,



have studied biopsy material obtained during the course of topectomy operations on psychotic patients for oxygen consumption and histochemical changes. This material is in the process of being evaluated.

In the collaboration with members of the Neurological Institute and the Departments of Neurology and Neurological Surgery, work was continued by Professor Wolf, Professor Cowen, and Dr. Christopher Iannucci on a long-term evaluation of the brain tumor material of the Neurological Institute. This work has been aided by a grant from the United States Public Health Service.

Professor Wolf and Professor Cowen are continuing their study of herpes simplex and inclusion encephalitis.

Under a United States Public Health Service grant, Professor Cowen and Professor Wolf continued work on the effect of intrauterine infections upon the fetal nervous system. A method for producing experimental congenital toxoplasmosis in the mouse has been devised and the pathogenesis of this type of infection is being elucidated.

Dr. Irwin Feigin of the Central Research Division of the Bronx Veterans Administration Hospital, recently appointed as Associate in Neuropathology in the Department of Pathology, has described a new form of phosphorylase in striated muscle, holophosphorylase, which synthesizes glycogen directly. This work was carried out in collaboration with Professor Wolf and with Mr. Jerry Frederick of the Central Research Division of the Bronx Veterans Administration Hospital.

Attempts to produce regeneration in the spinal cord of rodents are being carried out by Dr. Feigin, Professor Wolf, and Dr. Estelle Geller of the Central Research Division of the Bronx Veterans Administration Hospital. Preliminary studies indicate that there is no effective regeneration of the severed cord in rats.

The Division of Neurochemistry under the direction of Professor David D. N. Nachmansohn continued the investigations on the metabolism of nerve tissue and its relation to function. The approach is based on the study of enzymes and the correlation of enzyme activity with electrical manifestations of nerve conduction. This work was aided by grants from the United States Public Health Service, The Atomic Energy Commission, and the Office of Naval Research.

Dr. Irwin B. Wilson, working with Professor Nachmansohn, has initiated studies on the properties of the active surface of acetylcholine esterase. With the aid of various inhibitors and the pH dependence of their action, a great number of properties of the atomic groups in the active surface have been established. The experiments have opened new pathways for the study of many compounds and their effect on the metabolism of nerve tissue.

Dr. Saul R. Korey has studied the permeability of membranes surrounding

axons and cell bodies to amino acids, using isotopic  $N^{15}$ . The aid of Professor David Rittenberg of the Department of Biochemistry and of his associates in these determinations, which required the use of the mass spectrometer, is gratefully acknowledged. Studies on the ionic exchange across neuronal surface membranes in rest and during activity were also continued, in collaboration with Professor Harry Grundfest. Dr. Korey continued the study on choline acetylase, especially the specificity of this enzyme system and the compounds which may interfere by competition with the physiological substrate. Under Dr. Korey's supervision studies were carried out in which the variations of acetylcholine esterase activity were followed in normal individuals and in myasthenia gravis patients.

Dr. Felix Bergmann, Professor of Pharmacology at the Hebrew University of Jerusalem, was a guest of the laboratories for a period of eight months. His great knowledge and experience in organic chemistry were extremely useful and his drive and enthusiasm were a great stimulus.

Professor Nachmansohn edited a book on *Metabolism and Function*, published by Elsevier. The book, a tribute to Professor Otto Meyerhof on the occasion of his sixty-fifth birthday, contained thirty-eight contributions, five of them by Nobel prize winners and others by leading authorities in biophysics and biochemistry from all over the world.

Professor Grundfest has continued his work on the examination and evaluation of wartime injuries to nerves in one of the five centers set up in this country by the National Research Council and the Veterans Administration. Investigations growing out of the clinical examinations have also continued.

A preliminary publication of "Electromyographic Patterns in Reinnervated Muscles" appeared in *Federation Proceedings*. A full report, demonstrating heretofore undescribed single motor unit electromyograms of very large amplitude in reinnervated muscles, is in press. The work has been recommended for continuation in 1950-51 by the Committee on Veterans' Medical Problems of the National Research Council.

Professor Grundfest has continued, with Professor Nachmansohn and his colleagues, the studies on electrical and chemical correlates of nerve activity. During the summer of 1949, this joint work involved a study of permeability changes in giant axons during activity, using radioactive tracer techniques, and a study of simultaneous effect on cholinesterase and the spike in giant axons under action of various enzyme inhibitors. Additional studies by Professor Grundfest and Professor Nachmansohn are in progress on chemical and electrical correlates of activity.

Work in electrophysiology of the nerve and the central nervous system carried on during the year by Professor Grundfest and his associates include investigation on: the spino-olivary system by Dr. W. Bruce Carter; the ventral spino-cerebellar system and the external cuneate nucleus, with Dr. Robert

Sengstaken; the thalamic representation of afferent activity, with Dr. Sidney M. Cohen; the effects of afferent activity on excitability of adjacent dorsal roots, with Dr. Jonathan Magnes from the Department of Physiology, Hadassah Medical School, Hebrew University. A preliminary note was published in *Federation Proceedings* on the characterization of the fiber types responsible for vagal cardiomotor effects. This work was done with Dr. Samuel Middleton and Mrs. Hertha M. Middleton, Institute of Physiology, University of Chile, Santiago, Chile. Dr. Middleton was a Rockefeller Foundation Fellow during his stay at the Department. A report of this work is in press.

As part of the program of the Psychosurgical Group, under the direction of Professor Fred A. Mettler, investigations were carried out by Professor Grundfest on the parameters of cortical stimulation in the human and detailed mapping of the human cortex. Dr. Murray Glusman participated in these studies.

During the current year Professor Mettler worked in close association with the Department of Mental Hygiene of the State of New York, the Department of Institutions and Agencies of the State of New Jersey, and the National Institute of Mental Health of the Federal Security Administration, as well as with Rockland State Hospital, the New York State Psychiatric Institute, the New Jersey State Hospital at Greystone Park, the Department of Psychology at Yale University, and the Long Island College of Medicine. This collaborative enterprise grew out of the extension of the Department's studies in the field of psychosurgery. The first official publication by the Department in this field was issued in November of 1949 by Paul B. Hoeber, Incorporated, under the title of *Problems of the Human Brain*. This book represents the official report on the activities of the first Columbia-Greystone Associates Group. The official report of the second Columbia-Greystone Associates Group, entitled "Psychosurgical Problems," is expected to be published in the near future by the Blakiston Company of Philadelphia. The first meeting of the Research Conference Group on Psychosurgery of the National Institute of Mental Health was held at the Medical Center on November 17 and 18, 1949, and the second Conference on June 2 and 3, 1950. The proceedings of both conferences will be published by the Government Printing Office.

An investigative program which has occupied the Department for the past two years, the New York State Brain Research Project, was brought to a termination at the end of March, 1950, with the transmittal of a report of progress to date to the Dean.

The problems of biophysics and instrumentation in connection with the New York State Brain Research Project were carried out by Professor Grundfest and Dr. Glusman under the terms of a State contract and a United States Public Health contract. Under Professor Grundfest's direction Dr. Glusman has been engaged in studying the response of the patient to cortical stimula-

tion under circumstances in which the voltage and intensity of the stimulation can be varied from 0.8 to 80 volts and the three factors—voltage, pulse frequency, and pulse width—are independently variable. Stimuli with these parameters have also been used to map the entire motor area. The aim has been to use an optimal electrical stimulus at or near threshold value to determine the extent, configuration, and characteristics of the motor area in different individuals.

Dr. John R. Whittier and Dr. Malcolm Carpenter have continued their studies of the mechanism of production of hyperkinesia in animals. Dr. Whittier has prepared a collection of motion picture films of abnormal movements of cases that have been reported in the literature from time to time and has also continued the study of canine hydrocephalus. Dr. Carpenter has prepared a review of the literature dealing with the pathology of athetosis and dystonia. Dr. George W. Naumburg, Jr., has investigated the occurrence of changes in blood chemistry following destruction of the caudate nucleus and Dr. Sidney M. Cohen has studied the thalamic loci of afferent stimulation in the cat. Dr. Cohen has also been engaged in the investigation of suppressor mechanisms of the central nervous system by the method of stimulating the reticular formation and recording the effect of such stimulation upon induced reflexes, such as the patellar reflex, and nervous conduction at spinal levels. An honored guest in the Department during the current year was Dr. George W. Romanes of the University of Edinburgh, who was engaged in a study of motor localization by the use of retrograde changes, in the lumbosacral spinal cord of the cat. Professor Henry Alsop Riley has been engaged in the revision of his textbook, *The Form and Function of the Nervous System*. The Department prepared, for Dr. Margaret Murray of the Department of Surgery, a device for the cinematographic recording of photomicrographic evidence of changes as seen in tissue culture.

The Fourth International Neurological Congress met in Paris, France, September 5 to 10, 1949. The meeting was attended by twenty-three members of the Department and papers were read by the following: Dr. William Caviness, Dr. Bernhard Dattner, Dr. Arnold P. Friedman, Dr. Justin L. Greene, Dr. Paul F. A. Hoefer, Dr. Elvin A. Kabat, Dr. Lothar B. Kalinowsky, Dr. Joseph Moldaver, Dr. J. Lawrence Poole, Dr. Joseph Ransohoff, Dr. John E. Scarff, Dr. Maximilian Silberman, Dr. Abner Wolf, and Dr. Frederic T. Zimmerman. Professor Henry Alsop Riley, Vice President of the Congress, was honored by the French Government by election to the National Order of the Legion of Honor, with the grade of Chevalier.

Among other honors bestowed on members of the Department were the election of the executive officer of the Department to the presidency of the American Board of Psychiatry and Neurology, Inc.

## DEPARTMENT OF NEUROLOGICAL SURGERY

Professor J. LAWRENCE POOL, Executive Officer

A course of lectures in neurological surgery was presented to the fourth-year medical class in the first-floor amphitheater during the autumn and early winter months. This included nine lectures of one and one-half hours each during which patients were presented to illustrate clinical problems and post-operative results. The schedule was so arranged that neurosurgical teaching was supplemented by brief dissertations on allied subjects, such as neuropathology by Professor Abner Wolf of the Department of Pathology, neuro-roentgenology by Professor Ernest H. Wood of the Department of Radiology, electroencephalography by Professor Paul F. A. Hoefer of the Department of Neurology, orthopedic problems by Professor Frank E. Stinchfield of the Department of Orthopedic Surgery, and related anesthesia problems by a number of the members of the Department of Anesthesia. All the active members of the Neurosurgical Attending Staff participated in this lecture course.

The graduate training program includes regular clinics and conferences: a weekly four-hour conference for the benefit of the house staff every Tuesday morning; a combined clinic with the Department of Neurology every Saturday morning for an hour and a half for attending and house officers; and teaching rounds and operating instruction daily.

Research activities may be divided into three main categories: psychosurgery, which includes cranial operations for relief of mental illness and for pain; studies of cerebral circulation associated with intracranial aneurysms, vascular anomalies, and other conditions; and studies in brain tumor diagnosis and treatment.

An active program in psychosurgery is being pursued at the New York State Psychiatric Institute on a voluntary basis by Professor J. Lawrence Pool and Dr. Joseph Ransohoff. This involves not only surgical procedures for the relief of psychotic states, but also incidental observations on the physiology of the brain of the psychotic individual. The latter includes direct recording from various parts of the cortex by the electroencephalogram and also certain mapping studies of various parts of the cortex related with motor and autonomic phenomena. This work is part of a Topectomy Brain Research Project. In addition to this, other procedures in psychosurgery are being carried out by Professor Pool at the Neurological Institute.

Professor John E. Scarff is continuing his study on the effects of unilateral prefrontal lobotomy for the relief of intractable pain at the Neurological Institute. This has proved of great value and benefit.

Thanks to a special fund, the "Aneurysm Fund," it has been possible to purchase electrical equipment of a new type with which continuous recording of intra-arterial pressure can be made. This is done by insertion into the de-

sired artery of a small catheter about the size of a hypodermic needle. Extremely sensitive amplifying systems then translate the arterial pressure to an ink writer so that permanent records can be obtained. This new technique has already proved a life-saving measure in cases having intracranial aneurysms requiring ligation of parts of the carotid artery system. In addition, it has proved of great aid in mapping regions of the human brain yielding various vasomotor changes.

Part of the Brain Tumor Research Fund, in memory of Charles Evans Hughes, Jr., is being used for an extensive survey of malignant brain tumors of the glioma series. If laboratory space is available, it is planned to carry out experimental work with the production and arrest of this type of tumor during the coming year.

Part of the John Gunther, Jr., Memorial Fund for Research in Brain Tumors in Children is being used for an intensive study of malignant brain tumors in the tissue culture laboratory of Professor Margaret R. Murray of the Department of Surgery. This should be fruitful work.

Dr. Edward B. Schlesinger is extremely active in pursuing his studies of the location and extent of various types of brain tumor by the use of radioactive substances.

The appointment of a Research Fellow in the Department of Neurological Surgery has proven most valuable this year. Dr. Ransohoff who was the first to fill this post has done an enormous amount of valuable work and this year Dr. Charles E. Brackett is carrying on with Dr. Ransohoff's excellent work on intracarotid pressure changes and allied studies of the cerebral circulation.

## DEPARTMENT OF NURSING

Professor MARGARET E. CONRAD, Executive Officer

Further development of the elective program for senior students has taken place this year with evident success. There were three additions of major importance. Arrangements have been made to send eight students in two groups of four to the Visiting Nurse Service for a period of eight weeks. Experience at the Institute of Living has now been included as a senior elective instead of a requirement of the short course group. The completion of the new premature nursery has enabled us to offer work in this field as an elective also.

Consideration by the seniors of the various fields for graduate practice has again been handled by the group process, with advisers from the faculty and consultants experienced in the actual fields.

The Out-Patient Nursing Service continues to be a vital factor in demonstrating continuity of care for our patients. During the year ninety-four students made 2,875 home visits to 559 patients. The experience included also

ninety-six field trips to other agencies exclusive of the regular half-day observations at the Visiting Nurse Service of New York, presentation of ninety-six family studies, and 133 formal conferences.

Eighty-five graduates of the School took the State licensing examinations. There was one failure in one subject in October, but the candidate was successful in the reexamination in February.

The class of 1950, which graduated in the Armory on June 1st, numbered ninety-four students, of whom fifty-eight were degree candidates. We were fortunate in having Dean Millicent C. McIntosh of Barnard College as our speaker. Her fine address on nursing as a realistic profession is being widely quoted.

With the increase in tuition fees, scholarship funds are an increasingly important asset. The Dean Sage Memorial Scholarship was awarded to Sally Ann Smith, Class of 1952. This is the fourth award of the scholarship which provides all tuition and University fees for a degree candidate. Twenty-two University scholarships were granted this year.

Through the generosity of the local regional units of the Florists Telegraph Delivery Association Inc., acting upon the recommendation of Mr. John Cardasis of the Medical Center Florist Shop, scholarships of \$200 each were provided for two students in the entering class of 1952. Our Alumnae Association continues to grant annually eleven scholarships of fifty dollars for award by the Faculty to the students in the School. A special scholarship of fifty dollars has been donated again, for award to a member of the class of 1953, by the husband and parents of Mrs. Frederick Redpath (Virginia Hobler, '45), in her memory. The class of 1949 generously gave two scholarships of fifty dollars each on graduation: one to their "little sister class" and one to an entering student.

The class of 1947 raised \$250 as a scholarship fund in memory of their classmate, Mrs. Martin DeForest Smith, Jr. (Patricia Green), to be awarded during the coming year.

Of particular importance and interest this year as general nursing problems have been the structure of organized nursing, the accreditation activities by and for schools of nursing, and the operation of the Nurse Practice Act in New York State. Each of these subjects has been jointly studied by the University and Hospital Nursing Staffs.

A delegation of eleven at the Convention of the New York State League of Nursing Education held in Buffalo in October included two University delegates (an instructor and a student). In the group from Columbia University was Miss Marguerite Widmer, Education Director of the École Florence Nightingale in Bordeaux, France. During her study at Teachers College this past year Miss Widmer was a resident in Maxwell Hall. Motor transportation made it possible to visit six colleges to discuss nursing programs with various

officers and students. This activity is bearing fruit not only in candidates but in cordial relations with these institutions.

Professor J. M. Ada Mutch was granted a leave of absence from October 1 to January 1, 1950, to make a survey of the nursing situation in the Presbyterian Mission Hospitals in a number of countries in the Near and Far East. This survey was sponsored by the Presbyterian Board of Foreign Missions of the Presbyterian Church.

Professor Eleanor Lee was Chairman of a very successful Institute on the Improvement of Nursing Care held in New York City this spring. The group met at the Academy of Medicine under the auspices of the New York City League of Nursing Education and the New York Counties Registered Nurses Association.

Miss G. Harriet Mantel is Chairman of the Committee on Careers (Speakers' Bureau). She participated in the spring in a publicity campaign for nursing.

Professor Cecile Covell has been consulting on schools for practical nurse education in Michigan and California, a project enabling her to attend the Biennial Convention of the American Nurses Association in San Francisco in May.

The privilege of attending the conference on "Regional Planning for Nursing and Nursing Education" was greatly appreciated by Professor Conrad and Miss Marion D. Cleveland. It was held at Plymouth Teachers College, Plymouth, N. H., from June 12-23 under the auspices of the Division of Nursing Education, Teachers College, Columbia University. Members of the conference came from sixteen different states. Both the group and the panel discussions were interesting and stimulating.

Changes in the teaching staff have taken place as follows:

Miss Carol Cheston was appointed Instructor in Nursing to relieve Professor Mutch and to succeed Miss Catherine Griffin, who resigned. Miss Marjorie Jeanne Davis was appointed Instructor in Nursing to succeed Miss Lydia Clay, who resigned. Other resignations included those of Miss Virginia Vivian, Mrs. Eva Lindstrom Haruda, and Miss Susan B. Moore. They were replaced by Miss Margaret Frances Frank, Miss Margaret Elizabeth MacIntire, and Miss Catherine Johanne Schell, all appointed as instructors in nursing. Miss Florence Jensen, who resigned to be married, was replaced as Instructor in Nursing by Miss Irene Helen Russell. Miss Virginia Alice Gill was appointed Instructor in Nursing to succeed Miss Ruth Guinter, who resigned to become surgical supervisor in the American Hospital of Beirut, Lebanon. Miss Sarah May Reuss, Instructor in Nursing, has been on a leave of absence because of her health. Her subsequent resignation becomes effective on June 30th.

As the year closes all members of the Department are engaged in the



formalities of accreditation by the National Nursing Accrediting Service. Applications have been submitted and an official visit is expected during the summer.

## DEPARTMENT OF OBSTETRICS AND GYNECOLOGY

Professor HOWARD C. TAYLOR, Executive Officer

A few major changes in the teaching staff of the Department have occurred in the last twelve months. Two men, Dr. Everett Bunzel and Dr. Virgil Damon, who have given more than twenty years of service to the clinical and teaching programs of the hospital and medical school, have been promoted to the rank of Clinical Professor of Obstetrics and Gynecology. Two other men, by virtue of their directorships of Departments of Gynecology in affiliated institutions, namely, Dr. Morris Goldberger of Mount Sinai Hospital and Dr. Thomas Peightal of the Roosevelt Hospital, have also been made clinical professors.

The assignment of Professor Earl T. Engle of the Department of Anatomy to duties in the Department has been a change of major importance. Beginning as an investigator in the physiology and anatomy of reproduction in laboratory animals, Professor Engle's interests have greatly changed over the years to those of the problems of reproduction in the human. His assignment to work in a clinical department is not only a recognition of his own special interest but promises a fertile union between the preclinical and the clinical aspects of a research program in the field of human reproduction.

Beside these changes in the teaching staff, a word should be said about the development of the residency program which constitutes a major part of the graduate teaching program in obstetrics and gynecology. As mentioned in previous annual reports, the period of residency has been extended to a maximum of five years for selected men. In addition, there has been an increase in the number of residents and assistant residents in training at one time so that by the beginning of the next academic year there will be twenty-two men and women, exclusive of visiting scholars and fellows, who are regularly enrolled on the residency staff. This represents a doubling of residency appointments since 1946.

A part of the increase in the number of assistant residents has been made possible by the imminent opening of the Francis Delafield Hospital. According to the plans which have been made, the residency training in gynecological cancer in the Delafield Hospital will be very closely associated with the gynecologic and obstetric service in the Presbyterian Hospital and the two will, in fact, represent integral parts of a single general residency teaching program. This is in accordance with the theory that cancer, neither in research nor in

therapy, can be segregated as an isolated entity but must be studied and taught in relation to other pathologic processes and clinical problems.

The research work of the Department has continued to grow in extent and productiveness. At the time of this writing, the members of the staff of the Department report nearly one hundred projects or reports completed or in preparation. The laboratory work needed for the clinical investigations in the Department has been scattered through five or six different areas in the medical school. It is now with the greatest satisfaction that the Department looks forward to the concentration of its activities shortly to take place.

The cancer research of the Department has taken several directions. The early diagnosis of carcinoma of the uterus has been the special problem of a group associated with Dr. Saul B. Gusberg which has concerned itself with the clinical application of the Papanicolaou cytology methods and with making a survey of apparently normal women to determine the incidence of unrecognized precancerous lesions. Professor Samuel Graff of the Department of Biochemistry has continued his work with the virus of mouse mammary carcinoma and has collaborated with Professor Michael Heidelberger, of the Department of Biochemistry, in studying its immunological characteristics. He is also continuing to work on the nucleic acid metabolism of normal and malignant cells. Professor Gray Twombly's work, utilizing radioactively tagged estrogens, has been concerned with the routes of excretion and the possibility of concentration in specific sites of the steroids, whose relationship to cancer development is suggested by many observations. On the clinical side, several members of the staff are devoting their efforts to the perfection of a more radical operation for cancer of the cervix, as a possible substitute for the now more uniformly employed radiation therapy. The surgical renaissance in this field is in conformity with trends throughout the country which have appeared as a result of the availability of blood from the blood banks and the safety against infection provided by penicillin and the other antibiotics.

The general area of ovarian physiology, conception, and early pregnancy has been the special field of work of Professor Engle, Professor Charles L. Buxton, and others. A carefully planned study, to last for several years, on the relationship of the thyroid hormone to fertility is being carried forward in the Sterility Clinic under the special direction of Professor Buxton. Rather striking preliminary results have been noted in the treatment of a special group of sterility cases by means of an antibiotic, suggesting that minor infections of the cervix may at times be the cause of infertility. Several papers on the chemistry of cervical mucus have been completed and published by Dr. Landrum B. Shettles, now a senior resident in the Department.

Another field of constant importance in the Department of Obstetrics and Gynecology is that of pregnancy and its disorders. ACTH is being studied by Dr. Joseph W. Jailer of the Department of Medicine in its possible relation-

ships to the normal physiology of pregnancy, to toxemia, and to certain problems of the newborn. Clinical investigation has also been directed toward variations in renal physiology and in water distribution during the latter months of normal and abnormal pregnancy. The relationship of thromboplastin and the fibrinolysin system to toxemia of pregnancy has likewise been studied and is the subject of a report to be published by Dr. Byron C. Butler. In addition to these basic investigations, clinical studies continue this year in particular relationship to diabetes and to multiple sclerosis in pregnancy.

The problems of labor are still being kept in the forefront of obstetrical activity, since safe delivery is clearly the chief objective of this branch of medicine. Studies correlating variations in the finer architecture of the pelvis with abnormalities of labor have been an outstanding accomplishment of this department for many years. The original work of Caldwell and Moloy, defining the pelvis on a basis of four developmental types, has received over the years world-wide recognition. Recently, Professor Howard C. Moloy and Dr. Charles M. Steer have been occupied in the working out of a more simple system which could be applied to clinical problems more readily. The result of this work was reported by Professor Moloy at a meeting of the American Gynecological Society on May 13th. In conjunction with these studies of the "statics" of labor, work has continued on what might be called the "dynamics" of labor in the form of studies of the uterine contractions. A paper was published by Dr. Steer and Dr. George J. Hertsch in January in the *American Journal of Obstetrics and Gynecology* entitled "Electrical Activity of the Human Uterus in Labor." On the practical clinical level, the therapy of obstetrics has been characterized this year, in this institution as elsewhere, by the development of the techniques for continuous pituitrin infusion. Pituitrin has been used for many years as an occasional stimulant to uterine contractions. Its employment in single large doses was generally regarded as dangerous, however. The present method is apparently a quite safe one, depending on the continuous administration of minute amounts of pituitrin slowly given in large volumes of saline solution by intravenous infusion.

Of some special interest to the Department of Obstetrics and Gynecology has been the International Congress of Obstetrics and Gynecology, held in New York City from May 14 to 19, 1950. Of this Congress, Professor Buxton and Professor Taylor were Secretary and General Chairman of the Scientific Program Committee, respectively. The Congress was an event of some importance, since it was attended by nearly three thousand persons and was the first international gathering of members of this specialty since the year 1938 and the first ever held in the United States.

With the more or less complete unification of its laboratory research activities into two adjacent areas near its wards, the Department of Obstetrics and Gynecology believes it is about to reach one of its most important objectives.

For the development of an academic and scientific department, there still remains the need for a nucleus of full-time teachers and investigators.

The present system in the Department of Obstetrics and Gynecology, based entirely on the part-time system, represents a real handicap. First, from the standpoint of the administration of the Department, the director and his associates are working under great difficulties to maintain standards of instruction, research, and clinical care comparable to those of the other clinical departments which are administered by men who do not have the obligations of private practice to take them away from their departmental duties. Second, with regard to the objectives of the College in developing certain men for teaching and research, this Department is also at a disadvantage, because the lack of a full-time plan for at least a few of the younger group makes it practically impossible to retain men in the Department who have as their objective a life devoted to the academic aspects of this specialty. The obtaining of at least a small group of men who are relatively free from the time-consuming burdens of private practice must be regarded as one of the essential requirements of this Department, if it is to continue developing according to the stated objectives of the College of Physicians and Surgeons.

## DEPARTMENT OF OPHTHALMOLOGY

Professor JOHN H. DUNNINGTON, Executive Officer

During the past year the Department of Ophthalmology presented a full-time, four months course in the basic sciences related to ophthalmology, as part of a preresidency training program. There were twelve registrants, all of whom will enter residencies in approved institutions. The successful manner in which this course has begun augurs well for the future. Undergraduate teaching has been stimulated by the institution of frequent quiz sessions. It is felt that by these informal discussions ophthalmological problems can be presented in a more practical and more interesting manner.

The changes in personnel of the Department include the resignations of Assistant Professor Alson E. Braley who left to become Professor of Ophthalmology at New York University and of Dr. George N. Wise, Instructor, now Assistant Professor of Ophthalmology at New York University. These losses are offset by the following additions to our staff: Associate Clinical Professor Willis S. Knighton, Assistant Professor Seymour P. Halbert, from the Department of Bacteriology, and George R. Merriam, Ellen F. Regan, and Graham Clark, instructors.

The Department has continued to attract visiting scholars from various parts of the world. Among the fifteen registered with us during the past year were representatives from China, Mexico, Brazil, Norway, Canada, and British West Indies.

Professor Ludwig von Sallmann's activities during the year included further experimental studies on the vitreous. He has reported on the permeability of its surface condensation layer and the speed of disappearance of red blood cells under various experimental conditions. The effect on it of hyaluronidase, of short bouts of fever, and of thyroidectomy and injection of thyroxin have also been investigated. Working under a contract with the United States Government Professor von Sallmann has started an extensive series of experiments on the effect of X-ray radiations on the crystalline lens with the use of radioactive isotopes as indicators. In collaboration with Professor Zacharias Dische and Gabriele Ehrlich he has studied the penetration of cystine-cysteine into the aqueous humor and its relation to early radiation effects on the eye. The mechanics of action and new adrenergic blocking agents with emphasis on dibenamine and congeners were also investigated. Under Professor von Sallmann's direction Dr. John C. Locke is continuing his investigations on the cytological and bacteriological content of the aqueous humor. Dr. R. Lawrence Wiggins, a Visiting Scholar, is studying the effect of polymyxin in experimental infections with bacillus pyocyaneus. Dr. Ira Jones has reported on the effect of locally applied cortisone on vascularization of the cornea induced by alkali burns. Dr. Andrew de Roeth has determined the acetylase content in eye tissues and correlated the cholinesterase activity with the function of the pupillary musculature.

Professor George K. Smelser studied the basic physiology of the cornea as it is affected by the wearing of contact glasses. This work was sponsored by the Surgeon General's Office and was carried out in collaboration with Professor Dische, Mr. Isidore S. Finkelstein of the School of Optometry, Dr. Victor E. Kinsey of Harvard University, and Dr. Charles K. W. Ascher of the University of Cincinnati. Clinical application of these problems is now being continued by an investigation of the effect on the cornea of several major types of contact lenses used here and in England. The American Academy of Ophthalmology and Otolaryngology, through the Carnegie Institution of Washington, has sponsored the production of a teaching film entitled "The Embryology of the Human Eye." Professor Smelser prepared the text and supervised its production.

Professor Dische has continued his researches on the sulphur-containing amino acids of the proteins of the crystalline lens with particular emphasis on the role of oxidation of the sulfhydryl groups in senile cataract. He has developed new methods for the microdetermination of sugars and their metabolites. Under Professor Dische's direction Dr. Frederick Williams, resident, has studied the polysaccharides of the retina and Dr. de Roeth, certain aspects of corneal metabolism.

Professor Halbert has shown that certain bacteria known to produce antibiotics *in vitro* also produce the same materials when growing *in vivo* in infected animals. It has been demonstrated that significant numbers of

bacteria in the conjunctival flora possess this ability to produce an antibiotic material. In an effort to determine the role they play in bacterial conjunctivitis, further studies are being conducted.

In the Knapp Memorial Laboratory of Physiological Optics, Professor LeGrand H. Hardy, Dr. Gertrude Rand Ferree, and Miss M. Catherine Rittler have reported on their studies on Luneburg's metric of binocular visual space. Working under the sponsorship and support of the Office of Naval Research, this investigation of visual space suffered a severe setback in the untimely death of Dr. Rudolph Luneburg, but a reorganization has been effected and the work is continuing. Validation of the Hardy-Rand-Rittler polychromatic plates, the Navy lantern, the Stilling plates, and other tests for defective color vision is in its final stages.

Dr. Otto Lowenstein has continued his studies on pupillography and has found that characteristic changes in the pupillary reactions occur when the sympathetic and parasympathetic systems are injured at varying levels. The pupillary changes in various clinical entities such as glaucoma, geriatrics, optic neuritis, diabetes mellitus, and arterial hypertension are being investigated. In conjunction with Professor Beatrice C. Seegal of the Department of Bacteriology a study of the antigenicity of human, monkey and rabbit lenses injected into monkeys and rabbits has been instituted.

Enlargement of the scope of the investigations of Professor Algernon B. Reese and Dr. Frederick Blodi on retrolental fibroplasia has been possible through a generous grant from the Dunlevy Milbank Foundation, Inc. This problem is being studied both clinically and experimentally. The clinical work to determine the incidence of the disease includes the routine examination of all infants with a birth weight of less than four pounds at the Premature Nursery, Babies Hospital, and of all premature babies at Lincoln Hospital. To detect the late appearance of retrolental fibroplasia all premature babies in the Sloane Clinic are studied. Experimentally the effect of long-standing Vitamin E deficiency diets on the eyes of rats is being evaluated. Efforts are also being made to determine the influence of Vitamin E on the incidence of retrolental fibroplasia by the administration of this substance to alternate premature babies. A similar procedure is being carried out in the treatment of early retrolental fibroplasia by the administration of ACTH. Radiotherapy is being used in cases of moderate severity and surgical removal in the more advanced ones. Among the other clinical subjects being studied are: glaucoma, by Professor Willis S. Knighton; orthoptic treatment and reading difficulties, by Professor Maynard C. Wheeler; optic nerve lesions, by Frank D. Carroll; and blepharoptosis, by Professor Raynold N. Berke.

That the members of the Department have kept up their active interest in national ophthalmological affairs is shown by the positions of trust that currently are held by them: Chairman and Vice Chairman of the American

Board of Ophthalmology, Vice President and Secretary-Treasurer of the American Ophthalmological Society, Secretary for Ophthalmology of the American Academy of Ophthalmology and Otolaryngology, and representation on the Committee on Ophthalmology of the National Research Council, the editorial board of the *American Journal of Ophthalmology* and the *Archives of Ophthalmology*, and the Council and the Thesis Committee of the American Ophthalmological Society.

## DEPARTMENT OF ORTHOPEDIC SURGERY

Professor ALAN DEFORD SMITH, Executive Officer

The requests for postgraduate instruction by doctors from foreign countries continue and a number of visitors have been received at the New York Orthopaedic Hospital. Dr. Attilio Rampoldi from the University of Rome, Italy, was awarded a fellowship given by the Columbian Foundation and spent the greater part of his time at the New York Orthopaedic Hospital. Dr. Vinoobhai M. Cholera of Bombay, India, was received as a visiting scholar. Dr. Myer Makin from Israel has been appointed an Hadassah Fellow and will spend the following year at the New York Orthopaedic Hospital.

Among the research and clinical investigations carried out during the year was the study of electrolyte changes in shock, hemorrhage, and acute post-operative conditions, as well as in infections. This study was conducted by Dr. Charles M. Swindler, Junior Annie C. Kane Fellow, under the direction of the Department of Pharmacology. A study of certain phases of congenital dislocation of the hip was carried out by Professor M. Beckett Howorth and by Dr. William K. Massie, Senior Annie C. Kane Fellow. Professor Howorth has continued his investigations of slipping of the upper femoral epiphysis. An evaluation of late results in fractures of the spine was made by Dr. Orren D. Baab, Senior Annie C. Kane Fellow.

Professor Halford Hallock has carried out studies of the results of operative treatment of weak feet, hip fusion for cases of poliomyelitis, and, with Professor John E. Scarff of the Department of Neurological Surgery, studies of the results of treatment for herniation of the nucleus pulposus. Professor Frank E. Stinchfield conducted experiments in the use of oxidized cellulose gauze and of cortisone in the retardation of bone repair, and, with Dr. Edward B. Schlesinger of the Department of Neurological Surgery, has made a study of the use of curare and myanesin in painful back conditions and musculoskeletal lesions.

Dr. Walter A. L. Thompson and Dr. J. Sheridan Bell made a contribution to the method of measurement of bones by X ray, and Dr. Thompson published a paper on a technique for arthrodesis of the hip after removal of the

femoral head and neck. A new method for arthrodesis of the hip in cases of osteoarthritis was described by Professor Alan DeForest Smith.

The Fracture Service has presented thirteen papers at various surgical meetings throughout the year, most of which have been published or are in preparation for publication. In his study of healing, Professor Stephen S. Hudack has included the influence of cortisone and ACTH. The separation and identification of the mucoprotein, which appears to be important in organic matrix, has progressed. Professor Hudack has also continued his experimental and clinical studies on substitutive surgery, including tendon and fascial substitution. An analysis of the results of surgery for tendon cuff tears of the shoulder by Professor Harrison L. McLaughlin and Dr. Edward G. Asherman, Junior Annie C. Kane Fellow, was presented at a symposium of the American College of Surgeons. Dr. Baab has been studying the late treatment of carpal injuries. Dr. William U. Cavallaro, Junior Annie C. Kane Fellow, made an investigation of primary dislocation of the shoulder, and Dr. John A. Woodcock and Dr. Cline D. Hensley, Jr., assistant residents, are studying the pathology and treatment of internal derangement of the acromioclavicular joint. A paper on the management of pathological fractures resulting from parathyroid adenomata is in preparation. Dr. Edward F. Cadman is analyzing the pathological and therapeutic aspects of giant cell tumors and bone cysts.

## DEPARTMENT OF OTOLARYNGOLOGY

Professor EDMUND P. FOWLER, JR., Executive Officer

There has been comparatively little change in the teaching of otolaryngology during the past year. The third-year students seemed particularly enthusiastic about the sessions in the Outpatient Department. In order to improve the course, Dr. Albert R. Kolar is developing a collection of new lantern slides for the undergraduate teaching of common diseases of the ear, nose, and throat. The Coakley Memorial Prize for outstanding work in otolaryngology was awarded to Carl Feind of the fourth-year class.

Professor Edmund P. Fowler, Jr., represented the Department in a panel discussion on the Importance of the Specialties in Undergraduate Teaching before the American Medical Association section on education. The graduate courses for residents of Presbyterian Hospital and affiliated hospitals were continued. Graduate students from abroad included a Kellogg Fellow, Antonio Pineda, from El Salvador, studying otolaryngology and audiology, and a Fulbright Fellow, Dr. Henrik C. Huizing of Groningen, Holland, working on the physics of audiology. Dr. Huizing conducted several seminars in the graduate program and also for certain students from the Department of Special Education of Teachers College.



Professor Fowler has devoted himself almost entirely to studies on peripheral circulation; he was assisted by Dr. Robert O'Malley and Dr. Octa Leigh of the Department of Surgery and by Mr. Monroe Himelstein, a third-year medical student. Reports on this subject published in the last year include a description of "blood sludge" from epinephrin injection and a report on psychosomatic medicine concerning the neurogenic factors which involve the circulation of the nose and its effect on colds. This subject was also reported before the Fourth International Congress of Otolaryngologists in London.

Studies on the effect of streptomycin on the hearing and vestibular system are drawing to a close. This is a function of dosage and with the present dosage there is little to worry about, except in old age and in the presence of renal pathology. Experiments with cerebellar exercises have demonstrated their value in the rehabilitation of those patients affected by streptomycin poisoning of the vestibular apparatus.

Professor Emeritus John P. Kernan and Professor Franz Altmann continued their studies of cancer of the larynx and its invasion patterns. Dr. Jules Waltner and Professor Altmann, pursuing their work on the circulation of the perilymphatic and endolymphatic fluids, demonstrated that there is not a flow in the aquaeductus cochlea, but simply a diffusion which may go in either direction. Professor Altmann is continuing his studies on congenital anomalies of the ear, otosclerosis, and Meniere's disease, the last in collaboration with Dr. Fernand Montreuil.

Several men in the Department, notably Dr. Waltner, have been continuing studies on external otitis with the use of sulphamylon and other medications in various menstra. Dr. Edwin B. Bilchick and Dr. Kolar reported on the effect of irradiation of the nasopharynx on deafness and recurrent otitis media. Dr. Irwin A. Ginsberg has described a rare type of meningitis. Professor DeGraaf Woodman continued his studies on arytenoidectomy and has demonstrated the practicality of phonetic training following his arytenoidectomy operation. Dr. Jon Eisenson published a book on speech correction entitled *Basic Speech*. Mrs. Shulamith Kastein published an article on "Speech Hygiene Guidance for Parents of Children with Cerebral Palsy." Dr. Huizing and Mrs. Doreen Pollack have written an article concerning the "Natural Development of Speech Elements for Children under Three Years of Age with Limited Hearing." Work in this field is being continued. Experiments in psychogalvanometry and electrical recording of nystagmus are continuing.

We regret that Professor William F. Keim has found it necessary to resign from the Department for reasons of health, and that Professor Irving W. Voorhees has resigned on reaching the retirement age.

## DEPARTMENT OF PATHOLOGY

Professor HARRY P. SMITH, Executive Officer

The undergraduate teaching program of the Department is being constantly improved through continued integration of the subject matter of pathologic anatomy with that of other medical sciences.

The teaching program of the second year profits greatly from material received from the autopsy room. The material will have still greater value if current plans to modernize the autopsy room materialize, so as to permit group instruction of students, including clinical clerks and clinical staff, about the autopsy table itself. This will involve conversion of the inadequate autopsy amphitheater into a large up-to-date autopsy room, with two autopsy tables and movable pipe-stands capable of seating large numbers of students in immediate proximity to the tables.

The teaching program is also being strengthened by a modest program of enlarging the museum. This will serve to supplement the "cast collections" and photographs of gross specimens. However, it cannot take the place of more extensive use of fresh material at the autopsy table.

In the field of research, Doctor Joseph Seronde, Jr., has made important contributions in developing the quantitative relationships involved in anti-thrombin activity of blood. Professor Joseph E. Flynn and Dr. Robert W. Coon have made new contributions to current knowledge on the "accessory" factors of blood clotting. Dr. Alfred M. Keirle has studied certain problems of skin grafting and has developed procedures for the assay of results, as influenced by a wide variety of factors. Dr. James M. B. Bloodworth, Jr., has studied basic problems involved in distribution of water and electrolytes between the various body "compartments."

The Division of Neuropathology, under the leadership of Professor Abner Wolf and Professor David Cowen, reports an active graduate teaching program in addition to the course given to second-year medical students. Conferences were held weekly with the neurological and neurosurgical staff, and bi-weekly with the East and West services of the Neurological Institute. Weekly conferences were also held for the benefit of the resident staff of that Institute. The training of the Institute supplements that received by the residents in neurology and neurosurgery, each of whom is assigned for a time to the Division of Neuropathology.

Professor Wolf and Professor Cowen have continued their study of biopsy material removed in the course of topectomy operations on psychotic patients. Histologic studies have been supplemented by studies on oxygen consumption.

A cooperative program for the evaluation of brain tumor material has been carried out, in conjunction with members of the Departments of Neurology and Neurological Surgery.

Professor Wolf and Professor Cowen have also continued their study of herpes simplex and inclusion encephalitis. Likewise the studies on toxoplasmosis have revealed new features in pathogenesis of this infection.

Dr. Irwin H. Feigin, working in the Central Research Division of the Bronx Veterans Administration Hospital, has cooperated with Dr. Jerry Frederick of that laboratory and with Professor Wolf in demonstrating the existence of a new form of phosphorylase, holophosphorylase, in striated muscle. This enzyme system synthesizes glycogen directly.

During the past year the staff in the Pediatric Division of the Department included Professor Beryl H. Paige, Professor Dorothy H. Andersen, Dr. Phoebe Hudson, Dr. Arthur Cole, of Toronto, Canada, and Dr. Norman France, of London, England, all of whom shared the routine work of the Department and the teaching of the fourth-year course in pediatric pathology.

Professor Paige has also worked with Professor Katherine K. Merritt of the Department of Pediatrics in the study of congenital malformation in relation to illness or trauma during pregnancy. Professor Andersen has continued her work on chronic malnutrition in infancy. Dr. Ymkje Trap of Haarlem, the Netherlands, has joined the Department on a traveling fellowship, supported by the American Association of University Women, and has worked on fat digestion in children who have recovered from celiac disease.

The Commonwealth Fund has continued to support the study of chronic malnutrition. Dr. Hudson has studied congenital malformation of the larynx. A study of gastric ulcer in childhood was made by Dr. Cole. Supported by the Holt Fellowship, Dr. France is studying a group of cases with a fatal infection characterized by inclusion bodies in various organs.

Professor Theodore F. Zucker, Dr. Lois M. Zucker, and Dr. Benjamin N. Berg have collaborated in a study of nutritional problems in the rat. Special interest centers in the work showing the role of pantothenic acid deficiency in the production of duodenal ulcers. Since pantothenic acid is involved in acetylation mechanisms, a program has been started to clarify the possible relation of these mechanisms to the duodenal ulcers present.

These same workers have secured important data on the anemia produced in rats by aminopterin, a metabolic analog of folic acid. The role of yeast in counteracting this effect is being studied, and especially its possible relationship to the citrovorum factor required by *L. Citrovorum*. These studies bear an obvious interest to workers in the field of Vitamin B<sub>12</sub> and pernicious anemia.

The success of the Zuckers in breeding a strain of rats, resistant to the common pulmonary infections, should be appreciated by those who employ rats in experimental work.

Continued research by Professor Henry S. Simms on arteriosclerosis has given added evidence that the development of sclerotic lesions is influenced

by the balance between two materials, both present in blood plasma. One of these is a group of substances, known as lipfanogens (which include lipoproteins), that cause fat deposition. The other is an agent, antilipfanogen, which serves to prevent fat deposition. In normal individuals the ratio between antilipfanogen and the lipfanogens is remarkably constant. In conditions associated with high incidence of arteriosclerosis the ratio is low. The mechanism that controls this balance is under investigation.

Making use of a colony of rats raised to old age under carefully controlled conditions, Professor Simms is also studying the high mortality in advancing age. The studies deal with the factors influencing the accumulation of pathological lesions and with age changes in physiological resistance.

Doctor Hans Kaunitz, working in conjunction with Doctor Charles A. Slanetz, has produced evidence for the existence of a hitherto unknown nutritional factor, present in a distillate fraction or lard. A deficiency in this factor causes loss of weight in rats, along with changes in the eyes and in the skin. The biological properties of the new factor are somewhat similar to those of Vitamin A, but the workers are convinced that the two factors are distinctly separate entities.

## DEPARTMENT OF PEDIATRICS

Professor RUSTIN McINTOSH, Executive Officer

The fourth-year course in pediatrics, in which each student devotes practically all of his time to this one subject over a two-months period, affords opportunity for case work under close supervision in circumstances which permit the individual student to accept clinical responsibility in increasing measure as he proves his readiness to accept it. Assistance and counsel are available to him at all times. While this program has not been in effect long enough to permit detailed evaluation in terms of performance after graduation, there are reasons for believing that the students of the past three fourth-year classes are much better prepared than were their predecessors for the pediatric responsibilities with which they are confronted in their internships and beyond.

Leading up to this fourth-year course, the pattern of the orientational instruction offered during the student's third year deserves thorough review. This problem is complicated by basic considerations of the crowded third-year program and of the remoteness of essential clinical facilities, but it is receiving careful study at this time.

With the appointment of Professor Horace L. Hodes as full-time head of the pediatric service at Mount Sinai Hospital, student interest in the fourth-year clerkship offered at that institution has stayed at a high level throughout

the academic year. Professor Hodes has lost no time in continuing the pattern of balanced teaching established by his distinguished predecessors.

Research activity in the field of chronic nutritional disorders continues under the supervision of Professor Dorothy H. Andersen, with the participation of Professor John M. Bush, Dr. Paul A. di Sant'Agnese, Dr. Paul E. Wilson, and Dr. Ymkje M. Trap, a visiting scholar from Haarlem, the Netherlands. These studies have again been generously supported by the Commonwealth Fund.

Professor Hattie E. Alexander and her collaborators have tested a number of new antibiotic agents, defining their powers and limitations. Further observations have been gathered on the therapy of various infections, especially tuberculosis, whooping cough, and illnesses caused by *Hemophilus influenzae* and related organisms. A highly provocative contribution to the biology of *Hemophilus influenzae*, in which Miss Grace Leidy shared, is the identification and purification of a "transforming substance," a specific desoxyribonucleic acid capable of transforming an undifferentiated, non-encapsulated strain of this organism into a genetically homogeneous, type-specific, capsule-producing strain. The amount of transforming substance required is so small, and the effect so lasting and reproducible, as to support the suggestion, already advanced by Avery and others in respect to pneumococcus, that the effector is actually a gene and that genes are highly specific desoxyribonucleic acids. Part of this work was supported by grants from the Commonwealth Fund and from the United States Public Health Service. The project on chemotherapy of tuberculosis, in which Dr. Douglas S. Damrosch shared, was supported by the National Institutes of Health.

Professor Richard L. Day has extended his studies of the pathogenesis of nuclear jaundice and other complications of erythroblastosis fetalis, for which he has been given grants by the Coordinating Council for Cerebral Palsy and by the United States Public Health Service.

Professor Katharine K. Merritt's long-term study of the effects of illness occurring during pregnancy on the health and development of the fetus continues to assemble data of reliability and potential importance, although it has been impracticable thus far to attempt more than a fractional analysis of the material in hand. Increasing use is being made of techniques of psychometric evaluation of infants and young children in order to assess their innate mental equipment, not only in Professor Merritt's project but also in that of Professor Day relating to the consequences of erythroblastosis fetalis, and in that of Dr. Bertram R. Girdany in which correlations are sought between anoxemia in the first few minutes following birth and the subsequent appearance of psychic or motor disability. The Rockefeller Foundation has made a generous contribution toward the support of some of these studies.

Dr. Conrad M. Riley, in the course of his investigations of nephrosis, has

made some of the pioneer observations of the effect on this disease of injections of adrenocorticotrophic hormone (ACTH). Dr. Ruth C. Harris has extended her observations of liver function at early age levels. In the study of leukemia, the cure of which remains elusive in spite of the encouraging effects of a variety of drugs in producing temporary remission of symptoms, Dr. James A. Wolff continues to take an active part.

There have been twenty-one publications from the Department. The figure serves as a vague index of research activity, but it fails to reflect an ominous trend which has become increasingly noticeable over the past several years, namely, the progressive preemption of available laboratory facilities in Babies Hospital by routine diagnostic procedures. Until quite recently, when Presbyterian Hospital generously made available some space for conversion to pediatric laboratories, the only facilities of this sort under direct pediatric supervision were those in the Babies Hospital building. Because of their greater geographical convenience to the staff, these laboratories were for a long time preferred over any in other locations, as in the building of the College of Physicians and Surgeons, which might from time to time be loaned to us for a pediatric project. Now, however, regardless of convenience it is going to be necessary to look beyond the walls of Babies Hospital for areas in which to house selected pediatric research projects which do not depend completely on close proximity to the wards for their successful execution. Limitation of laboratory facilities in the existing situation constitutes a serious handicap in the Department's research program.

Professor McIntosh delivered the Packard Lecture before the Philadelphia Pediatric Society in October, and in November addressed the Second Pan-American Congress of Pediatrics at its meeting in Mexico City. In November Professor John Caffey delivered the Leo G. Rigler Lecture in Minneapolis.

Dr. Norman E. France, of London, England, held the Holt Fellowship during the last half of the academic year. Dr. Bertram R. Girdany's fellowship under the National Heart Act was extended for an additional six months. The William Perry Watson Prize was divided equally between Mr. Hans Werner Neuberg and Mr. Henry P. Ward of the fourth-year class.

## DEPARTMENT OF PHARMACOLOGY

Professor HARRY B. VAN DYKE, Executive Officer

Improvements in instruction, particularly in the required course for second-year medical students, were introduced. Special attention was given to the devising of experiments which were not only instructive but also demanded the full participation of individual students. These experiments were supplemented by more elaborate demonstrations of the action of drugs both in man

and in other mammals. For the success of some of these demonstrations and for the presentation of other material valuable to the student of pharmacology, the Department is indebted to members of other departments. Special acknowledgement should be given to Professor John W. Fertig of the School of Public Health, Professor Emmanuel M. Papper of the Department of Surgery, Professor Edith H. Quimby of the Department of Radiology, and Dr. John R. West of the Department of Medicine.

Professor Alfred Gilman directed a course for hospital residents twice during the year. This course emphasized advances in pharmacology with particular reference to their importance to therapeutics. A course on applied pharmacology for fourth-year medical students was offered cooperatively by the Department of Medicine (Professor Hamilton Southworth) and the Department of Pharmacology (Professor Gilman).

Professor Gilman has continued his studies on the renal excretion of electrolytes with particular attention to the renal excretion of potassium. This work was sponsored by the United States Public Health Service. In collaboration with Dr. Gilbert H. Mudge and Dr. James G. Foulks, further evidence for the renal tubular secretion of potassium has been marshaled. The physiological conditions which initiate the tubular secretion of potassium as well as drugs which affect the process have been partially defined.

Mr. Paul Brazeau has been engaged in studying the effects of adrenalectomy on the renal excretion of potassium. It has been determined that adrenalectomized dogs are still capable of secreting potassium into the tubular urine.

Studies on the metabolism of important hypnotic and anticonvulsant drugs by Dr. Everett W. Maynert and Professor van Dyke were continued under the sponsorship of the United States Public Health Service. Dr. Maynert has identified for the first time some of the metabolic products in the urine after the administration of pentobarbital (Nembutal), amytal, and neonal. Dr. Maynert and Professor Papper have begun studies of the fate of pentobarbital in man. Dr. Alberto Giotti, a Rockefeller Foundation Fellow from the University of Florence, investigated, in association with Dr. Maynert, the renal excretion of barbital; they found that most of the drug is returned from the glomerular filtrate to the blood. The aspects of this work requiring drugs labeled with heavy nitrogen,  $N^{15}$ , make the use of a mass spectrometer necessary. Determinations with this instrument were generously made by Professor David Rittenberg of the Department of Biochemistry.

Dr. Rose G. Ames and Professor van Dyke have continued their studies of the endogenous secretion of the antidiuretic hormone by the posterior pituitary. With Dr. Irvin C. Plough of the Department of Medicine, they have also investigated the urinary excretion of this hormone in patients with disease of the liver.

Studies of the properties of follicle-stimulating hormones from the pituitary glands of sheep and swine, including the antigenic characteristics of these hormones, have been completed by Dr. S. Y. P'an, Dr. Theodore Shedlovsky, and Professor van Dyke. A large part of the support of the endocrine investigations was furnished by E. R. Squibb and Sons.

Dr. J. B. Hill tested a large number of pure organic compounds for a possible therapeutic substitute for insulin in diabetes mellitus. This work was supported by Eli Lilly and Company.

Dr. A. S. Parkes of the National Institute for Medical Research of London lectured on the preservation and behavior of living spermatozoa and ova of mammals. Lectures were also given by Dr. Geoffrey W. Harris of the University of Cambridge and by Professor Alfred E. Wilhelmi of Yale University.

Professor Gilman received the Hachmeister award of Georgetown University; he has also been appointed to the editorial board of the *American Journal of Physiology*. Professor van Dyke was appointed a member of the Committee on Growth of the National Research Council which is responsible for the distribution of research grants of the American Cancer Society. Professor van Dyke has succeeded Professor McKeen Cattell of Cornell University as editor of the *Journal of Pharmacology and Experimental Therapeutics*.

## DEPARTMENT OF PHYSIOLOGY

Professor MAGNUS I. GREGERSEN, Executive Officer

Dr. John L. Nickerson, whose fundamental work on ballistocardiography has opened new investigations of great scientific and clinical importance, has been advanced from Associate Professor to Professor of Physiology. Dr. Louis Cizek, Instructor, has been advanced to Assistant Professor. Two members of the staff have resigned to accept positions elsewhere. Dr. Herbert Borison, Instructor, has joined the Department of Pharmacology, University of Utah, and Dr. Thomas Fleming, Instructor in Physiology, has accepted a position as one of the Assistant Medical Directors at Hoffman-La Roche, Inc. Dr. Robert Nelson, who during the past year has been Assistant in Physiology, is being advanced to Instructor in Physiology. Mr. Robert Semple, former University Fellow and subsequently a Research Fellow under the Baruch Grant, has also been appointed an Instructor in Physiology. Miss Zia Javid from Iran has been made an Assistant in Physiology. Dr. Sidney J. Circle has been appointed Acting Director of the Electrophoresis Laboratory and Research Associate in Physiology during the absence of Professor Dan H. Moore of the Department of Anatomy. Dr. Circle is on leave from the Soya Products Division, The Glidden Company.

As in the past, members of the staff have contributed to teaching in other



departments of the medical school, and one member, Professor Thomas H. Allen, with the assistance of other members of the staff, gave a course in physiology in the School of General Studies, Columbia University. Professor Nickerson and Dr. Circle took active part in a group effort to develop the teaching in biophysics at the Medical Center. The advanced course in physiology for residents of affiliated hospitals was again given twice during the year by Professor Shih-Chan Wang. Professor Walter S. Root continued a course of lectures on the autonomic nervous system at the New York State Psychiatric Institute. The summer course in physiology continues under the direction of Professor Wilson C. Grant, and the number of applications received reveals a growing demand for this course, especially among advanced students in the biological and medical sciences.

Professor Nickerson's investigations with the ballistocardiograph have received continuing support from the United States Public Health Service. After presenting a paper at the International Physiological Congress in Denmark this summer, Professor Nickerson will lecture in Copenhagen and will also present a paper at the First International Cardiological Congress in Paris. Professor Nickerson's investigations include a further study of the properties of the ballistocardiograph; a study of the changes in pattern occurring when myocardial function is improved with digitalization, carried out in collaboration with Dr. James A. L. Mathers of the Department of Medicine, and Dr. Fleming; further studies of patients with coarctation of the aorta, conducted in collaboration with Professor George H. Humphreys, II, and Professor Ralph A. Deterling of the Department of Surgery; studies of the effect of psychiatric analysis on the cardiac output undertaken with Dr. Leon Moses of the Department of Psychiatry; a study of patients in the older age group which is being done at the Mary Imogene Bassett Hospital in Cooperstown, N. Y., in collaboration with Dr. Norman P. Hill; completion of the research on patients with arteriovenous fistulas carried out in collaboration with Emory University, Atlanta, Ga. Professor Nickerson also has taken a leading part in a critical study of radioactive techniques for estimating blood volume.

Professor William L. Nastuk has adapted the technique of impaling single-muscle fibers for investigation of the neuromuscular junction. This study is concerned with the fundamental mechanisms involved in neuromuscular transmission insofar as they may be approached from a study of the resting and action potential of the muscle cell membrane in the region of the end plate. Special attention is being given to the action of two chemical compounds of physiological and pharmacological interest, acetylcholine and d-tubo curarine. Financial support for Professor Nastuk's investigations has been received from Hoffman-La Roche, Inc. Professor Nastuk was a winner of one of the American Physiological Society Travel Awards to the International Physiological Congress in Copenhagen, where he will deliver a paper.

Professor Wang and Dr. Borison completed investigations of the localization of the central vomiting mechanism. It is found that dogs with minute bilateral lesions in the dorsal portion of the medulla are refractory to the emetic action of apomorphine and digitalis glucosides. These experiments solve the long controversial question as to where digitalis acts to induce vomiting. In addition, it is clear that the dorsal portion of the medulla plays the role of a generalized chemoreceptor trigger zone for the vomiting center. Implantation of radioactive seeds in the medulla has confirmed the site of this center as localized by previous stimulation experiments. The investigations are being supported by a grant from the United States Public Health Service.

Professor Root and Dr. Peter Orahovats are studying the effect of total sympathectomy on hemoglobin production. The effect of total sympathectomy on the erythropoietic response to anoxic anoxia is being investigated by Professor Root and Professor Grant. Mr. Frank G. Carpenter is working with Professor Root on hypertrophy of the bladder following parasympathetic denervation. Dr. Carl Barlow, who graduated from the School of Dental and Oral Surgery this year, has been working with Professor Root on a study, recently published, of the ocular sympathetic path between the central cervical ganglion and the orbit in the cat. Professor Root has been elected Vice President of the New York Academy of Sciences and has accepted the chairmanship of the Committee on Scientific Aid set up by the American Physiological Society.

Continuing the studies initiated in collaboration with Professor Root, Professor Grant has secured additional evidence concerning the mechanism controlling the production of red cells. This includes a study of the carotid body in relation to anoxia and blood formation; a recently published report on changes produced in hematocrit value, hemoglobin, and plasma volume by repeated artificial pneumothorax; investigations, in collaboration with Dr. Robert Nelson, of the relation between certain endocrines and erythropoiesis; and the studies in progress with Professor Root exploring the possible relation between the sympathetic nervous system and erythropoiesis. Professor Grant has been requested to serve as Associate Examiner in Physiology for the National Board of Medical Examiners.

The T-1824 dye method of determining plasma volume has continued to stimulate several important investigations. Professor Thomas H. Allen and Dr. Orahovats have published results of measurements of the association between the dye T-1824 and bovine plasma albumin; from these results it can be predicted that in the blood stream 99.9 percent of the dye is bound to albumin. They also have completed studies of both the kinetics and the equilibria of interaction between respiring liver slices and mixtures of T-1824 and albumin. Professor Allen, with the collaboration of Mr. Semple, has started

a critical comparison of plasma volume estimated by small and very large amounts of T-1824. The agreement thus far obtained indicates that there is no measurable loss of dye during the initial period of mixing in addition to the amount of loss predicted from the conventional extrapolation of the disappearance curve. Evidently T-1824 combines with plasma albumin far more rapidly than it does with living cells. Hence, rapid staining of tissues or absorption of dye by the reticuloendothelial system does not induce error in the measurement of plasma volume as has been claimed by some investigators.

Of special theoretical and practical interest is the well-known discrepancy in blood volume measured with the plasma dye method, the carbon monoxide method, and the radioactive iron method. Professor Nickerson, Professor Root, and Professor Gregersen, in collaboration with Dr. Leon Sharpe of the Brookhaven Laboratories, have completed a direct comparison of these methods in a large series of dogs. The results reveal that the dye method, in addition to being by far the simplest and most precise of the techniques, also yields the most consistent values in repeated tests.

Investigations of the mechanism of thirst have been continued by Professor Gregersen and Dr. Cizek with the assistance of Mr. Semple and of Dr. Kee-Chang Huang, Fellow of the American Bureau for Medical Aid to China. It has been found among other things that dogs demineralized by the intraperitoneal glucose technique developed polydipsia and polyuria similar to that observed in dogs demineralized by sucrose diuresis. The findings cast doubt on the hypothesis that cellular hydration regulates thirst. Mr. Semple, in a study on rats, found that the adjustment of this species to acute salt deficiency is quite different from that of the dog. Professor Gregersen and Dr. Huang have made further study of the drinking response after injection of various types of hypertonic solutions. These tests suggest that mechanisms as yet undefined are involved in the drinking response. Dr. Nicholas di Salvo, Dental Fellow, and Professor Gregersen are exploring other aspects of this problem.

Mrs. Louise Wang, National Institute of Health Research Fellow working with Professor Gregersen, has undertaken a study of blood volume in the rat, with an improved technique which permits repeated determination on the unanesthetized animal.

Dr. Marjorie Zucker, formerly a member of this Department, and Dr. Cizek have recently published the results of their studies on the effect of hypoproteinemia on the plasma and interstitial fluid volumes and renal clearance in dogs. These investigations received financial support from the Baruch Committee on Physical Medicine.

Professor William W. Walcott, with the assistance of Mr. Norman R. Alpert, has obtained reliable information on the changes in oxygen consumption during hemorrhagic shock and following transfusion therapy in dogs.

The study has been made possible by use of the Scholander respirometer which gives a continuous record of the oxygen consumption, CO<sub>2</sub> production, RQ, and pulmonary ventilation.

The Electrophoresis Laboratory, under the direction of Dr. Circle, has continued collaboration with other departments on problems requiring specialized techniques available in the Electrophoresis Laboratory. In addition, Dr. Circle has conducted fundamental studies on the effect of hydrolysis on various proteins, employing the electron microscope, ultracentrifuge, and electrophoresis apparatus as tools of investigation. The electron microscope also has been used in a study of bacterial metabolism carried out in collaboration with the Department of Bacteriology.

## DEPARTMENT OF PSYCHIATRY

Professor NOLAN D. C. LEWIS, Executive Officer

The usual organized undergraduate, graduate, and postgraduate teaching program has been carried out at the New York State Psychiatric Institute. Additional hours allotted to the first-year course in human behavior have greatly improved its usefulness as an orientation in the theory and practice of psychiatry. This expansion of the teaching program makes it possible to prepare the students for the evaluation of interpersonal relationships as well as for the study of more severe mental disorders.

Research investigations in nearly all sciences related to psychiatry have been carried on through the year, and thirty-five papers and three books have been published by members of the psychiatric faculty working at the Institute. Forty-two addresses have been delivered before scientific societies.

Professor Carney Landis of the Department of Psychology was elected a member of the Division of Anthropology and Psychology of the National Research Council and Associate Professor Joseph Zubin was appointed consultant to the Biometrics Branch of the United States Public Health Service, National Institute of Mental Health. Professor Warren Sperry, a member of the Cardiovascular Study Section of the National Institute of Mental Health, was appointed chairman of a committee established by the Commissioner of Hospitals of the City of New York for the purpose of surveying the clinical chemical facilities of the hospitals operated by the city.

Professor Armando Ferraro gave a series of twelve lectures at the University of Milan, Italy, on dynamic psychiatry and psychosomatic medicine discussing both the physiogenic and psychogenic factors involved in mental diseases.

Active research is still in progress on the various problems of "psychosurgery" and some valuable extensive reports have been issued. It will require at least another year of follow-up work before the results can be evaluated.

Thirty-four psychiatrists attended the Psychiatric Clinic during the academic year, and fourteen attended the Group Clinic. Two volunteers, one a general medical man and the other a gynecologist and obstetrician (Dr. Herbert Pierson and Dr. Harold Leopold), have also been attending the clinic for experience in psychotherapy.

Additions to the clinic staffs include Dr. Alan B. Adam, Dr. Edward L. Brennan, Dr. William Brooks, Dr. Hyman Chartock, Dr. Ralph B. Dawson, Dr. J. Lawrence Evans, Dr. Marthe L. Gassman, Dr. Hugh Mullan, Dr. Eda Priest, and Dr. Leonard Scheinman. Five of the clinic staff are on leave of absence: Dr. Leon L. Altman, Dr. Fanny von Hann-Kende, Dr. Hugh McHugh, Dr. Martin Schreiber, and Dr. James E. Shea.

Dr. Zygmunt Piotrowski has been on leave from the clinic during the academic year and has been ably replaced for the year by Mrs. Stephanie Dudek. Dr. Piotrowski, with Professor Nolan D. C. Lewis, is now engaged in a special research project on schizophrenia. He also serves as Expert Consultant in Psychology to the United States Army Medical Center at Washington, D. C.

Resignations included those of Dr. Soll Goodman, Dr. Justin Greene, and Dr. Bernard S. Robbins.

The teaching of third-year medical students has continued to be the main teaching obligation of these clinics. The third-year students were asked to submit a comment on the course at the end of their clinical clerkships. They expressed the desire to see more progress in treatment, the wish to see both male and female patients at the Psychiatric Institute, the wish to observe more interviewing in the one-way screen room. They have expressed a wish to spend more time in psychiatry. Two elective students worked in our clinics three mornings a week this last trimester.

The teaching staff conferences particularly stressed systematic instruction in human sexual problems. Dr. John F. Oliven prepared a sex questionnaire which was given to the three groups of students. The results of this questionnaire indicate the need for additional instruction in this field. One staff conference also dealt with basic principles of social service case work and principles of supervision of student social workers, as they apply to this clinic.

Physical and pharmacological methods in psychiatry are coming to the fore. Space for the utilization of physical methods in an outpatient setting are seriously lacking in our clinic.

During 1949, 740 patients made 3,723 visits to the Psychiatric Clinic. There were 486 new cases—146 men, 287 women, 37 boys, and 16 girls. The wards of Presbyterian Hospital requested 238 psychiatric consultations.

There have been fifteen papers and two books published by members of the Vanderbilt Clinic staff. The Group Clinic, now in its fourth year of operation at Vanderbilt Clinic, has assumed major importance as a complete diag-

nostic service for patients. Fourteen psychiatrists were assigned to this clinic during the year.

The Psychoanalytic Clinic for Training and Research enjoyed a stable and productive year in which there were relatively few changes in policy or personnel. The major effort went into consolidating the many teaching and research plans laid down during the rapid expansion made possible through support from the United States Public Health Service during the past two years. Many courses and procedures which were initiated on an experimental basis have now proven their worth and are being further developed.

The courses given at the Clinic and the personnel teaching them remained the same as last year. The greatly increased supervision of therapeutic work has been a vital factor in the sound training of students. This year Dr. Nathan W. Ackerman gave students two hours of supervision per week in the Children's Service, in addition to the two hours given by Dr. David M. Levy. Dr. James P. Cattrell and Dr. Thomas A. Loftus, both graduates of the Clinic, were appointed to supervise the Inpatient Service. Through this expansion, students now receive four hours of supervision per week in the Inpatient, the Outpatient, and the Children's Services. The Outpatient, Briefer Methods Service continued to operate in small sections under the supervision of Dr. Fanny Hann-Kende, Dr. Nathaniel Ross, Dr. Henriette R. Klein, and Dr. George S. Goldman.

During the past year, students, staff, and guests of the Clinic heard four outstanding visiting lecturers. Dr. Franz Alexander, Director of the Chicago Institute for Psychoanalysis, discussed "Specificity of Emotional Factors in Disease"; Professor Jules H. Massermann of Northwestern University Medical School spoke of his work with animals; Dr. Franz Polgar gave a professional demonstration of hypnosis; and Professor Howard S. Liddell of Cornell University gave a review of the many new findings resulting from his research on goats.

A rigorous follow-up study of former Clinic patients was initiated this year. This research project has a two-fold goal: establishing criteria for therapeutic results and evaluating the efficacy of treatment. Under the active supervision and participation of Professor Sandor Rado, this project is being carried out by Dr. Aaron Karush and Dr. Lionel Ovesey.

The newly organized Continuation Studies for Alumni has been very successful from every viewpoint. Practically all graduates of the Clinic have participated in the program, which has included regular meetings once a week.

Professor George E. Daniels returned after a year's leave of absence to resume his responsibilities as Associate Director of the Clinic. Professor Abram Kardiner and Dr. John A. P. Millet of the Department of Medicine were promoted during the year. Dr. Raymond de Saussure was appointed Associate.

Dr. John S. Poe resigned from the Clinic to become head of the Department

of Psychiatry at the University of Arkansas School of Medicine, and it is our sad duty to report that Dr. Poe died of a coronary thrombosis in May, 1950, soon after his acceptance of the professorship. Dr. Leon Moses took over his work as Coordinator of Supervisory Conferences at the Clinic.

Virtually all members of the Clinic staff were active in research, presentation and/or publication of scientific papers, work with professional and community organizations, and teaching responsibilities.

Professor Rado, Director of the Clinic, addressed scientific meetings in Washington, Detroit, Chicago, New Orleans, and Hartford, as well as several in New York. His "Adaptational View of Sexual Behavior" appeared in the book *Psychosexual Development in Health and Disease* published by Grune and Stratton; and his article, "Mind, Unconscious Mind, and Brain," was published in *Psychosomatic Medicine* this year. Dr. Levy, as usual, has been active on the many scientific committees on which he serves and has presented papers at several meetings, both in New York and out of town. Professor Kardiner has another book in preparation and his article, "Psychodynamics and the Social Sciences," appeared in the magazine *Dialectica*, published in Switzerland.

Dr. Nathan W. Ackerman delivered many papers at meetings, published his book *Anti-Semitism and Emotional Disorder*, and has been very active as Director of the Council Child Development Center.

Dr. Millet, delegate of the Association to the World Federation of Mental Health for the American Psychoanalytic Association, was also one of the Clinic staff members who took part in the panels of the Association meetings in Detroit. He is on the Advisory Committee of the Division of World Affairs of the National Committee on Mental Hygiene and was engaged in various community activities, including several broadcasts on psychiatry.

Dr. Nathaniel Ross is associate editor of the *Bulletin of the American Psychoanalytic Association* and contributing editor to the *International Archives of Allergy and Applied Immunology* and the *Quarterly Review of Allergy and Applied Immunology*. Dr. Hann-Kende conducted a seminar for graduates one evening a week under the new program of Continuation Studies for Alumni in addition to carrying out her teaching and supervisory responsibilities at the Clinic. Dr. Goldman, who came to the Columbia staff from the Long Island College of Medicine this year, was engaged in many community psychiatric activities, served on several committees and projects at Hillside Hospital, and continued his work with psychiatric films.

Dr. Henrietta R. Klein was a member of the Committee on Medical Education of the Group for the Advancement of Psychiatry, lectured at the Institute on Child Guidance of New York State, was co-author of *Anxieties in Pregnancy; a Psychosomatic Study* (published by Hoeber), and acted as psychiatric Consultant for the Veterans Administration, giving group seminars for

psychiatric residents. Dr. Raymond de Saussure published articles in professional magazines, as well as his section, "Psychoanalysis and History," in *Psychoanalysis and the Social Sciences* (International University Press); his book *Present Trends in Psychoanalysis* was published in Paris by Hermann et Cie.

Recent graduates of the Clinic have been offered excellent opportunities in the teaching and research fields. Dr. Norman Nixon and Dr. Herbert Ripley are successfully carrying their many responsibilities at the University of Pennsylvania and the University of Washington respectively.

Dr. Robert G. Heath has successfully reorganized the Department of Psychiatry at Tulane University, of which he is chairman, and has initiated a large and active research department at the University, in collaboration with the various hospitals now affiliated with Tulane University. He is one of the authors of the first volume of *Problems of the Human Brain*, published by Hoeber this year. Dr. Norman Rucker is working with him at Tulane.

Dr. Karush has been active on the ulcerative colitis research project this year. Dr. Lionel Ovesey is collaborating on a book which is in preparation.

Among students who have not yet received their Certificate of Training from Columbia, Dr. Russell R. Monroe has accepted an appointment as Assistant Professor of Psychiatry at Tulane University effective September, 1950. Dr. Bernard Glueck, Jr., was appointed Prison Psychiatrist at Sing Sing last fall. Dr. Margaret Lawrence is working at the Council Child Development Center. Dr. John Weber is one of the co-authors of volume I, *Problems of the Human Brain*.

The present first-year class has seventeen students, including one from Canada, one from Mexico, and one from Italy. The class to start in September, 1950, will probably consist of the same number of students.

Professor Daniels resumed direction of the Medical-Psychiatric Division and Psychosomatic Service. Progress has been made in all areas of activity, especially in the research program. Dr. Kenneth Kelley and Dr. Ruth F. Moulton were promoted to Associate; Dr. Leon Moses was promoted to Instructor.

The number of psychiatric consultations from the Medical and Obstetrical Services has increased over that of the previous year. Members of the staff answered 180 consultations. Many of these furnished case material for teaching third-year undergraduate students, as well as students taking electives in the department.

The third-year undergraduate teaching of students on the medical service was conducted by Dr. Moses throughout the last year, including the summer teaching in 1949. Dr. Walter Stewart will conduct the course in the summer of 1950. Dr. Lief and Dr. Charles Hogan supervised two third-year students taking an elective in psychosomatic medicine.



Dr. Moulton was given active assistance by Dr. Sidney L. Horowitz of the Dental School in the teaching of her course in psychosomatic dentistry for postgraduate dental students.

Dr. Kelley again taught two courses in psychosomatic medicine for the Department of Physical and Occupational Therapy. Dr. Stewart was again invited to give a presentation to the first-year students in the Correlation Clinic in Physiology. He also gave two lectures on psychosomatic medicine to undergraduate nurses.

Funds were granted by the United States Public Health Service in September, 1949, for research in the psychosomatic aspects of ulcerative colitis and amenorrhea. With the close cooperation of the Department of Surgery, through Professor John S. Lockwood and Dr. Robert B. Hiatt, a psychophysiological laboratory was established. Dr. Hiatt has directed the physiological studies and Dr. Karush has conducted the psychiatric studies and therapy with the assistance of Dr. Harvey Corman. Simultaneous observations were made on physiological changes in motility, vascularity, and enzyme secretion of the colon during psychotherapy. This included balloon studies, the use of a plethysmograph to determine vascular changes, and lysozyme and other proteolytic enzyme determinations. The effect of vagotomy on selected cases is also being investigated, as well as animal studies of motility and vascular changes under the influence of drugs.

Dr. Kelley, Dr. Ruth Easser, Dr. Poe, and Dr. Russell R. Monroe have accumulated twenty-five unselected cases of secondary amenorrhea, many of which were studied from physiological and endocrinological aspects as well as from the psychological aspect. Three additional cases of amenorrhea are receiving psychoanalytically oriented psychotherapy with periodic reevaluation of the hormonal status. Indications are that there will be data to suggest a close correlation between secondary amenorrhea and psychosexual immaturity, schizoid traits, and disturbance of oral patterns associated with weight changes of undetermined etiology.

The combined psychodynamic and hemodynamic study of a patient with hypertension was continued by Dr. Moses. The patient has completed two years of therapy and investigation. Psychodynamically, the hypertensive response seems predominantly related to rage reactions to frustration of infantile and dependent desires. Anxiety is also an important psychological trigger mechanism for the hypertensive response. Hemodynamically the rage reaction appears to be consistently related to elevated peripheral resistance, whereas anxiety more frequently is related to increased cardiac output.

Dr. Felix Hoffman has conducted a pilot study on the psychological implications of menorrhagia. Ten women in whom there were no physical findings to account for the excessive bleeding were selected for psychiatric evaluation or therapy. It was found that in every case functional excess of menstrual

flow occurred after a serious traumatic life situation. The personality types vary, but all show immaturity and a considerable degree of dependency.

Dr. Millet has assembled a psychiatric team for beginning a research project in peripheral vascular disorders. Dr. Russell Monroe, Dr. Harold Lief, and Dr. James Dyde of the Psychoanalytic Clinic for Training and Research will participate in the project. A survey of the literature on Raynaud's Disease has been completed, and similar surveys will be undertaken on *thromboangiitis obliterans* and thrombophlebitis.

Dr. Moulton has actively participated in two research studies conducted in the School of Dental and Oral Surgery, the first being concerned with Vincent's angina and chronic gingivitis. Professor Frank E. Beube and Dr. William A. Themann and Dr. Sol J. Ewen of the Dental School have cooperated in this project. Psychiatric interviews have been conducted on twenty cases, eight with acute Vincent's angina. All of the patients with Vincent's were in situations of acute anxiety which seemed to precipitate the oral difficulty. The patients with chronic gingivitis were older and had more chronic problems. The second project connected with the Dental School has been a psychiatric study of cases of periodontosis referred by Professor Maxwell Karshan of the Department of Biochemistry after thorough examination from the biochemical, nutritional, and endocrinological points of view.

Dr. Easser has conducted psychiatric interviews on twenty-two patients with hyperemesis gravidarum who were receiving medical treatment in the obstetrical wards. The purpose of the survey was to trace the common underlying personality types, if any, and the specific causative factor for the acute illness.

This year 126 patients were processed by the Psychosomatic Service Clinic, of whom a total of sixty-three were in active treatment. Of these, twenty-four were carried over from the previous year, and thirty-nine were new cases. Thirty-six patients received treatment terminating this year, and twenty-seven patients are being carried over to next year.

Clinic cases covered an especially wide range of psychosomatic disorders including asthma, arthritis, cardiac diseases, diabetes, dermatoses, enuresis, glaucoma, ulcer, mucous colitis, ulcerative colitis, hypertension, thyrotixicosis, Raynaud's Disease, and tuberculosis.

This broad assortment of diagnostic categories enriched the training experiences of the students, each of whom presented one of his cases in regular monthly staff conferences. The practice of allotting two hours for these case presentations was fully justified by the improved quality of the conferences.

Through joint meetings with the staff of the other services of the Psychoanalytic Clinic for Training and Research, greater coordination between the Services was achieved on technical questions involving form and content of patients' charts. Psychosomatic cases also continue to be presented at Clinical Conferences and Section Supervision classes by the Psychoanalytic Clinic.

## SCHOOL OF PUBLIC HEALTH

Professor HAROLD W. BROWN, Acting Associate Dean and Director

The student body of the School of Public Health numbered 150 during the 1949-50 academic year and included students from sixteen foreign countries. The following degrees were awarded at the June, 1950, commencement: Doctor of Public Health, 2; Master of Public Health, 26; Master of Science degree in: Hospital Administration, 26; Health Education, 16; Industrial Hygiene, 6; Sanitary Science, 5; Biostatistics, 1; Parasitology, 4.

Through cooperative arrangements with the New York City Department of Health, available facilities for the teaching and research program in the field of nutrition have been greatly enlarged and strengthened. These facilities will enable the School not only to enlarge and improve its general nutrition teaching but also to give outstanding training to public health physicians who wish to specialize in nutrition. The Milbank Memorial Fund has made available two fellowships to stimulate the interest of postgraduate students in nutrition.

After a two-year leave to serve as Commissioner of Health of New York City, Dr. Harry S. Mustard resigned as DeLamar Professor of Public Health Practice and Director of the School of Public Health as of December 31, 1949, to accept the position of Executive Director of the State Charities Aid Association. Professor Mustard's loss is greatly felt by the School of Public Health. Fortunately, however, he has agreed to continue giving courses in public health practice at the School, and has been appointed Professor of Public Health Practice. During Professor Mustard's ten years of service, the student body of the School of Public Health has grown nearly tenfold. Divisions of Parasitology, Hospital Administration, and Public Health Education have been added, and extensive and active research programs have been developed. Twenty-six scientific papers were published during the year giving the results of the School's research.

Professor James L. Troupin made a survey of the health activities and needs of Princeton, New Jersey, and the surrounding area. As a result, a full-time health department will be developed.

Hospital Administration has just completed its fifth year. There has been a total of 126 graduates, twenty-nine of whom are physicians. As in previous years, leaders in hospital administration from the United States and abroad have participated in the instruction. The distinguished lecturers and visitors include: Mr. B. Lees Read, Clerk to the Governors, Guys Hospital, London; Mr. Philip Constable, Director, St. Georges Hospital, London; Dr. Otis L. Anderson and Mr. John Steinle of the United States Public Health Service; Dr. Robin C. Buerki, Vice President in Charge of Medical Affairs of the University of Pennsylvania; and Dr. Basil MacLean, Director of Strong Memorial Hospital in Rochester.

Professor John Gorrell was selected by The United Hospital Fund, The Hospital Council of New York, and The Greater New York Hospital Association to develop and direct a course in hospital construction and alterations. The program was conducted for a period of thirty weeks. This was an opportunity for advanced study for the forty-seven administrators and assistants who registered for the course. As a committee member of the American College of Hospital Administrators and with the W. K. Kellogg Foundation group, Professor Gorrell worked with Mr. Michael Mertel on research problems and institutes on special phases of hospital administration. The Association of University Programs in Hospital Administration held two national meetings for the improvement of such programs. Professor Gorrell was elected President of this group for 1950-1951.

The Third International Institute for Hospital Administrators, June 17-30, was held at Rio de Janeiro, where Professor Gorrell gave a paper on "Geriatrics and the Chronic Disease Hospital" as a guest of the Federal Inter-American Affairs Bureau.

Miss Mary Johnson resigned to become Educational Director of the American College of Hospital Administrators in Chicago. She was succeeded by Mr. Michael Mertel, a graduate in hospital administration from Columbia University and former Assistant Director at Roosevelt Hospital in New York.

We mark with regret the passing, on February 3, 1950, of Dr. Claude W. Munger, retired Professor of Hospital Administration. Dr. Munger played a leading part in the development of the hospital administration course at the School. His wise counsel and untiring aid were of untold value in this new enterprise.

In the Division of Epidemiology, Professor E. Gurney Clark and his associates have completed their epidemiological and clinical study of reinfection and relapse among patients with early syphilis treated with penicillin. This study was supported by funds from the United States Public Health Service.

Professor Clark has continued participation in a study of untreated syphilis being conducted by the Department of Dermatology and Syphilology of the University of Oslo and the Norwegian Public Health Service. Since his return from Norway in August, 1949, his participation has been through correspondence. The Norwegian investigators, Dr. Nils Danbolt, Professor of Dermatology and Syphilology of the University of Oslo, and his associate, Dr. Trygve Gjestland, brought their data to New York and spent a month, beginning May 25, 1950, at the School of Public Health.

A research project on the epidemiology of hypertension, financed by the Recess Commission on Hypertension of the Commonwealth of Massachusetts, was undertaken by the Division. This is being carried out with the cooperation of the Bureau of Applied Social Research of Columbia University and will continue for several years.

Professor Clark has continued as a member of the Subcommittee on Venereal Diseases, National Research Council, and as a Special Consultant to the Venereal Disease Division of the United States Public Health Service. He continued working with the Communications Materials Center, cooperating as consultant on health education materials. Professor Clark was President of the American Venereal Disease Association for the year 1949-50. He was consultant to the Expert Committee on Venereal Diseases of the World Health Organization and attended meetings of the Committee in Washington in October, 1949. He accepted an assignment as consultant to a study of endemic syphilis in Yugoslavia during the period July to September, 1950.

Professor L. D. Zeidberg resigned January 31, 1950, to become Director of the Williamson County (Tennessee) Tuberculosis Study; Dr. John P. Fox resigned August 31, 1949, to become Professor of Epidemiology at the Tulane University School of Medicine; Mr. James C. McCullough left Columbia January 31, 1950, to accept a position in India with the Venereal Disease Section of the World Health Organization.

The first Doctor of Public Health degree granted by the School was granted to an Egyptian student, Dr. Mohamed O. Shoib, whose major field of work was in this Division and whose doctoral thesis was entitled *Proposed Occupational Health Program for Egypt*.

A one-week intensive course in industrial medicine for officers of the Naval Reserve was given in September, 1949. About thirty students attended the course.

The research of the Division has been directed primarily toward the relationship of nutrition and industrial poisoning. Studies were carried out during the year on the use of tissue culture techniques in evaluating metabolic disturbances due to toxic compounds. The possible relationships between fatty changes in the liver and bone marrow are being investigated in employees exposed to various chemicals, including mercury. A study is also being made of workmen's compensation in heart disease. Eleven articles in various scientific journals report the results of these studies. Support for these studies comes from the United States Public Health Service, the National Vitamin Foundation, Inc., Hoffmann-La Roche Inc., the United States Vitamin Corporation, The Lakeside Laboratories, Inc., and the New York Health Association.

Dr. Leonard Goldwater was the principal speaker at the annual meeting of the Territorial Association of Plantation Physicians, Puunene, Maui, T. H., in November, 1949.

The Division of Health Education, under the direction of Professor Llewellyn E. Kling, has continued to expand its teaching and field training facilities. Outstanding health educators from voluntary and official health agencies have participated in the teaching and have made the agency facilities available for field training of the students.

The teaching activities of the Division of Parasitology have continued as in previous years; however, there are more graduate students specializing in parasitology. During the current year three students are working toward the Ph.D. degree in parasitology and four toward the Master of Science degree. There is an ever-increasing use of the New York City Tropical Disease Clinic for special instruction in tropical medicine for both American and foreign students.

Research by Professor Harold W. Brown and Dr. Kathleen L. Hussey on the chemotherapy of amebiasis, filariasis, and enterobiasis has been continued. New drugs developed by Sharp and Dohme, Inc., Eli Lilly and Co., The Abbott Research Laboratories, and the Upjohn Company are being tested against these parasitic infections. The results of these studies were published in four journals during the current year.

Professor Roger W. Williams is continuing to work on the taxonomy of *Culicoides tristriatulus* which he collected in Alaska last summer while working with the United States Public Health Service. He is describing, for the first time, the immature stages of this insect. Professor Williams carried out some tests of drugs against the body louse.

Mrs. Constance R. Demarest moved from the Department of Medicine into the Division of Parasitology in July. As a result, all of the parasitological examinations for the Medical Center are now done in the Division of Parasitology.

Professor Brown has served as consultant to the Chancellor of the University of Puerto Rico and has helped in the organization of a four-year medical school for Puerto Rico. The faculty for the first two years of medicine is now complete, and the freshman class will enter in August of 1950.

Dr. Hussey spent the summer of 1949, and will spend the summer of 1950, at the University of Michigan Biological Station, where she and Professor Lyell J. Thomas of the University of Illinois are working on a helminthological problem supported by the United States Public Health Service.

In the Division of Sanitary Science, Professor John M. Henderson continued his study of the bionomics of *Anopheles albimanus* in Puerto Rico. Mr. John W. Rehn has been in local charge of these studies, which are supported by the United States Public Health Service. Professor Charles C. Spencer and Dr. Albert Beckman continued their study of air-borne infection in Babies Hospital. These studies, also, are supported by the United States Public Health Service.

Mr. Charles C. Spencer resigned April 1, 1950, to take charge of the Division of Sanitary Engineering of Buffalo, New York. Dr. Alvin R. Jacobson of New York University will replace Mr. Spencer as Assistant Professor of Sanitary Science.

Professor Henderson has been serving as Regional Malaria Consultant to

the Southeast Asia Regional Office of the World Health Organization from May 25, 1949, and will continue in this post until August 16, 1950; he is spending the months of June and July on field travel in India and Thailand as adviser to the respective national malaria control and irrigation services. He is also serving, from June 15, 1950 to September 15, 1950, as visiting consultant in Sanitary Science to schools of hygiene at Sao Paulo, Brazil, Santa Fe, Argentina, and Santiago, Chile. This mission is under the auspices of the United States Public Health Service and United States State Department.

The consultation services of the Division of Biostatistics are used by many of the departments of the medical school and hospitals. These consultations are a fruitful source of problems for class presentation.

Professor John W. Fertig has been advising Dr. Neal Chilton of the New Jersey State Health Department in the adaptation of certain statistical techniques to problems encountered in dental research. This work has been sponsored by a grant from the Navy. Professor Fertig has been working with Professor Kling of the Division of Health Education in studies of controlled fertility in certain counties in North Carolina and Alabama. These studies have been partly supported by the Planned Parenthood Federation. Almost a year's accumulation of data has been subjected to a preliminary analysis.

Last summer Professor Fertig spent a month in Puerto Rico at the School of Tropical Medicine as Visiting Professor of Statistics.

## DEPARTMENT OF RADIOLOGY

Professor ROSS GOLDEN, Executive Officer

Five new instructors in radiology were appointed during the year: Dr. Omar K. Legant in July; Dr. Ida Sterman and Dr. Raymond F. Healey in August; Dr. Emil H. Schnap, who had been in the Department since August, 1947, on a National Cancer Institute Fellowship, in January; and Dr. George M. Himadi in February. Several instructors and one assistant in radiology resigned either to go into private practice or to take up work in other parts of the country, among them Dr. Walter T. Hileman, Dr. Omar K. Legant, Dr. Ida Sterman, Dr. George M. Himadi, Dr. Frank R. Kinsey, and Dr. Louis A. Rottenberg.

Besides the twelve regular residents, the Department at present has five clinical fellows, Dr. John S. Green, Dr. Lester J. Honig, Dr. Daniel MacKillop, Dr. Baginda Sjahriar Rasad of Indonesia, and Dr. Georgia M. Lee, who is here on a National Cancer Institute Fellowship. Lt. Col. Harry L. Berman, whose period as trainee for the U. S. Army terminated June 30th, will be replaced by Major George F. Lull, who will also act as Commanding Officer of the R.O.T.C. of the College of Physicians and Surgeons.

Dr. Robert P. Ball, who left on September 1st to become Professor of Radiology and executive officer of the Department at Cornell University Medical School and Director of the Radiological Service of the New York Hospital, was replaced as head of the Third Floor Division of the Radiological Service by Professor Josephine S. Wells.

Professor Harold W. Jacox gave an instructional course on radiation treatment of tumors of the kidney and adrenal glands in Cincinnati during the session of the American Roentgen Ray Society there in October. He presented papers on radiation therapy in medicine, on the relation of radiotherapy to plastic surgery, and on isotopes and other trends in radiotherapy before different scientific groups, and he presided over the Symposium on the Treatment of Cancer of the Breast at the annual meeting of the Radiological Society of North America in December. He was appointed by the United States Army Medical Corps to act as radiologic consultant to the Armed Forces Institute of Pathology in Washington, D. C., from April 17th to 30th.

Other activities in the radiotherapy division during the year include the equipment of a workshop for making molds and appliances as aids to more accurate centering and dosage measurement in X-ray treatment of cancer. This was made possible by a grant from the Damon Runyon Memorial Fund. By means of the same fund, part-time services of Mr. Fred Scherer, specialist for the Museum of Natural History in the techniques of anthropologic reconstruction, have been acquired. Further study is planned with regard to dosimetry problems, in collaboration with Professor Edith H. Quimby and Mr. Carl Braestrup, physicists.

Members of the radiotherapy division continue to direct the program for the use of hormones in advanced carcinoma in association with the Tumor Chemotherapy Clinic. Funds from the American Cancer Society, Inc., are available to support this program.

Professor Vincent P. Collins, Dr. Morton M. Kligerman, and Dr. Daniel MacKillop visited the Massachusetts Institute of Technology for the purpose of observing the work done there with supervoltage apparatus and with rotation therapy. Plans are proceeding to develop equipment for rotational X-ray therapy here although we unfortunately lack a supervoltage therapy machine. Professor Collins visited the betatron installation at the University of Illinois in Chicago, and also the Mallinckrodt Institute of Radiology in St. Louis, to observe techniques and methods of using supervoltage equipment.

Professor Collins was invited to speak to the X-ray department of New York University Medical College in April, on the techniques of radiotherapy in treatment of carcinoma of the breast. In January he published in the *American Journal of Roentgenology* an article on bone involvement in cryptococcus (Torulosis).



Professor Ernest H. Wood, together with Dr. Himadi, gave one of a series of four demonstrations of X-ray films over television apparatus arranged by Professor Golden and Professor Ball for the Graduate Fortnight at the New York Academy of Medicine. On June 12th Professor Wood presented a paper on chordomas at the annual meeting of the American Neurological Association in Atlantic City. During the year his teaching program was increased for undergraduates by a series of ten lectures to fourth-year students and by a similar series for graduate students in neuropsychiatry. The lectures deal with X-ray problems in the diagnosis of neurosurgical conditions.

A section on the X-ray diagnosis of syphilis and aneurysm of the aorta, prepared by Professor Lois Collins, has appeared in Nelson's *Loose Leaf Medicine*.

Professor Wells, in collaboration with Professor Maurice Lenz and Professor Arthur P. Stout of the Department of Surgery, wrote a chapter, "Radiotherapy of Hodgkin's Disease—Lymphosarcoma," for Dr. U. V. Portmann's new book on radiotherapy to be published by Thomas Nelson and Sons. She has also written a paper on therapeutic radiology and one, in collaboration with Dr. Philip Brown of the North County Community Hospital in Glen Cove, on cor pulmonale resulting from pulmonary arteriosclerosis, both of which have been accepted for publication.

Professor Kligerman has published an article on the effect of radioactive phosphorus on the growth of the albino rat.

A paper by Dr. Healey, "The Relationship of the Roentgenographic Appearance of the Pulmonary Artery to Pulmonary Hemodynamics," was published by the *American Journal of Roentgenology* in December, and one on interatrial septal defect appeared in the May issue of the same journal. His article on pulmonic stenosis is in press.

The work of the Radiological Research Laboratory has continued along the lines described in previous reports. The research project for the Atomic Energy Commission has been continued and also the problems allied with therapeutic radiology and with medical uses of radioactive isotopes.

Professor Harald H. Rossi has joined the staff of the Laboratory. He was appointed Assistant Professor of Radiology (Physics) on September 1, 1949, under contract to the Atomic Energy Commission.

Professor G. Failla's work has been largely in connection with the Atomic Energy Commission and other government agencies, both civilian and military, on problems relating to atomic energy. He is a consultant to several of the Atomic Energy Commission Installations and to the Armed Forces Special Weapons Project and the Nepa Project. He is chairman of the Atomic Energy Commission Advisory Committee on Isotope Distribution and a member of the subcommittee on Human Applications. He is chairman or member of

various committees dealing with protection of personnel from ionizing radiations, radiobiological research, radiological instrumentation, and medical applications of radioactive isotopes.

With the increasing use of radioactive substances, it has become necessary to establish a committee in the Medical School to give advice and assistance regarding the development of new problems in this field, as well as to supply the required liaison with the Atomic Energy Commission. Professor Failla is chairman of this committee and Professor Quimby is also a member. They have been consulted by research workers from several departments and have assisted in setting up several new investigations.

In addition to consultations on new work on radioactive isotopes, Professor Quimby has continued her active collaboration with the two groups using radioactive iodine—Professor Virginia K. Frantz, of the Department of Surgery, and the surgical group studying thyroid cancer, and Professor Sidney C. Werner, of the Department of Medicine, working on diagnosis and treatment of toxic goiter. Also with Professor Werner, studies on thyroid function, both in animals and in humans, are being carried out.

Professor Quimby gave her course of lectures on radiological physics in both the fall and spring terms, as well as single lectures in courses in physiology and pharmacology in the Medical School. She has continued to serve as examiner for the American Board of Radiology, is a consultant for the American Medical Association and for the Veterans Administration, and is a member of the National Committee on Radiation Protection.

Professor Failla and Professor Quimby continue to be members of the Subcommittee of the Joint Committee on Graduate Instruction for work in biophysics. Several courses have been offered, particularly for the students in this field, by Professor Failla, Professor Quimby, Professor Roberts Rugh, and Professor Rossi. One student is now doing experimental work in the department for his Ph.D. thesis; others plan to do so in the future.

The Fellows in Radiology continue to devote one month of their final year to work in the Radiological Research Laboratory, with the special purpose of obtaining some familiarity with radioactive isotope procedures.

Through funds provided largely by the Atomic Energy Commission, the work of the laboratory has continued to expand, with continually greater need for space. It is anticipated, however, that the addition to the Vanderbilt Clinic will be completed this fall, and this will remedy the situation by providing one floor for the new Radiological Research Laboratories. Adequate space will then be available for the experimental work of the Department, for the students mentioned, and also for those to be trained in Health Physics for the Atomic Energy Commission.

Professor Failla, Professor Quimby, Professor Rugh, and Professor Rossi have appeared on the programs of national and local radiological and medical

and other scientific societies and have given a number of other lectures to medical and lay audiences. In November, 1949, Professor Quimby was an official delegate to the Third Inter-American Congress of Radiology, in Santiago, Chile.

Several papers, too numerous to list, have been published during the year by members of the Department, and several others are awaiting completion.

Professor Ross Golden gave one of the evening lectures on "Advances in X-ray Diagnosis of Diseases of the Digestive Tract" at the Graduate Fortnight of the New York Academy of Medicine. This paper was published later in the *Bulletin of the Academy of Medicine*. In October, Professor Golden, with Dr. Myer Sharpe, Assistant Resident, presented a study to the staff of St. Agnes' Hospital, White Plains, on diseases of the small intestine, with reference to the results of end-to-end anastomosis after resection of the sigmoid. The same study was presented to the residents of the Boston City Hospital in January. Professor Golden and Professor Lois Cowan Collins gave a refresher course on diseases of the small intestine before the Radiological Society meeting in Cleveland in December. Professor Golden was appointed to the editorial board of a new journal called *General Practitioner* and to that of the *American Journal of Roentgenology*, and was reelected to the American Board of Radiology by the American College of Radiology.

A study on spontaneous pneumothorax was published in the August issue of *Radiology* by Dr. Louis A. Rottenberg and Professor Golden.

In June Professor Golden left for London, England, to attend the Sixth International Congress of Radiology, as Chairman of the American Delegation, Representative for Columbia University, and Delegate for the National Research Council. He also attended the Fifth International Congress on Cancer in Paris. On June 21st, by invitation, he presented the Mackenzie Davidson Memorial Lecture for 1950 before the British Institute of Radiology.

## DEPARTMENT OF SURGERY

PROFESSOR GEORGE H. HUMPHREYS, II, Executive Officer

The increasing tempo of change at the Medical Center, which finds outward expression in the active progress of the building program in the hospital, the medical school, and in the imminent completion of the Francis Delafield Hospital for cancer, has been reflected in many problems of adjustment within the Department this year. At the same time, we have had to meet increasing financial stringency and to face the loss of a key member of the Department whose skillful guidance and energetic contributions have been of incalculable assistance in the past.

On June 16 Professor John S. Lockwood died in Harkness Pavilion. Al-

though he had been on sick leave since April 1st, due to a vicious virus infection, he had made an apparently satisfactory recovery, and his sudden death came as a shocking surprise. Professor Lockwood's outstanding record of accomplishment, which had won him rapid recognition throughout this country and abroad, is reviewed elsewhere. As an outstanding graduate of our residency training program who returned to us as Professor only four years ago, he epitomized to an exceptional degree the aspirations of the Department and occupied a special position of affection in the hearts of all of his colleagues. Even though he had planned to leave the Department for a position of great challenge, his death, a great loss to American surgery, is especially a loss to his intimate associates here.

Professor Edward J. Donovan and Professor John Scudder returned to active service in the fall after sick leave. Dr. Ferdinand F. McAllister returned on January 1st from an eighteen-month leave of absence which he spent as a National Heart Institute Fellow, working with Dr. Claude Beck in Cleveland. His return is a valuable addition to the group working in the rapidly expanding field of cardio-vascular surgery. Also on January 1st, Dr. Henry T. Randall was appointed Instructor in Surgery following completion of his residency. Dr. Randall did outstanding work in the metabolism unit on studies of electrolyte balance during his period of training and in June was awarded a degree of Doctor of Medical Science on the basis of this work. His appointment continues the policy of appointments to the staff of men from the residency program who give promise of productive academic work.

In the Anesthesia Service, Professor Virginia Apgar took advantage of sabbatical leave to visit twenty-five clinics in Sweden and the British Isles and twenty-two in this country and Canada, where active clinical and research programs in anesthesiology are in progress. The experience so gained will do much to improve the organization of our service.

On September 1st Dr. Emanuel M. Papper was appointed Professor of Anesthesia and given over-all charge of the service. Professor Apgar continues in charge of the clinical service, and on April 1, 1950, Dr. Duncan A. Holaday was appointed as Assistant Professor in charge of research.

During the year Dr. Cordt E. Rose, Dr. William Musicant, and Dr. Mary Ward resigned from the Anesthesia Service; Dr. William S. Howland, Dr. Edgar C. Hanks, and Dr. Frederick W. Hehre, Jr., were appointed instructors in anesthesia on completion of their residencies.

Due largely to the strengthening of this section of the Department through new appointments, the anesthesia staff has moved forward during the year into a new phase of productive activity. In this activity, its integration with other research projects, both within the Department and with other departments, is manifest. In addition, over 19,000 anesthetics were administered to patients.

Professor Papper has collaborated with Professor David V. Habib and Professor Stanley E. Bradley, of the Department of Medicine, in studies on hepatic and renal function during anesthesia and surgery. The data collected thus far suggest that cyclopropane and thiopental were equally effective in reducing estimated hepatic and renal blood flow in normal male patients subjected to anesthesia and operation. The changes in blood flow during spinal anesthesia appear to be associated with changes in systemic arterial pressure. In the renal studies, glomerular filtration decreased proportionally to the decrement in renal blood flow. Water and electrolyte excretion fall more than glomerular filtration. Similar effects were observed during the action of demerol.

Professor Papper has continued the joint study, initiated last year by Professor Apgar in association with Professor Ralph A. Deterling and Dr. Marcel Goldenberg of the Department of Medicine, on the effects of nor-epinephrine on cardiac function during anesthesia. Working with animals, it has been demonstrated that a significant difference occurs in the incidence of ventricular arrhythmias during cyclopropane as contrasted with ether anesthesia.

In addition, studies have been begun in collaboration with two members of the surgical resident staff, Dr. Samuel R. Powers and Dr. Hugh R. Fitzpatrick, on the measurements of circulatory function during anesthesia by original methods. Other studies are planned, in collaboration with Professor Richard L. Day of the Department of Pediatrics and Professor Robert C. Darling of the Department of Medicine, on the modification of heat-regulating mechanisms by drugs used in conjunction with anesthesia. Dr. M. Jack Frumin and Dr. Shih-Hsun Ngai have been active in a variety of physiologic studies directed toward a fuller understanding of circulatory disturbances in patients during or following anesthesia; Dr. Vance Lauderdale, Jr., and Professor Holaday, in collaboration with Professor Harry B. Van Dyke of the Department of Pharmacology, have initiated pharmacologic studies of the action of local anesthetic agents and the metabolism of phenobarbital.

Eleven papers have been published by members of the anesthesia staff and sixteen scientific papers have been presented during the year by various members of the Department. This work has been supported by contributions from the Damon Runyon Memorial Fund, E. R. Squibb & Sons, the Ely Lilly Company, the Fund for Advancement of Blood Vessel Surgery (under Professor Arthur H. Blakemore), and the Surgical Research Fund.

In the laboratory of surgical pathology the number of visitors and post-graduate students from this and other countries continues at a high level, and occupies much of the energies of the members of the laboratory. The number of specimens received for examination has almost doubled in the past five years; 8,318 have been examined this year. Part of the increase in the hospital specimens can be accounted for by 306 Papanicolaou examinations made during the year. These examinations aided in the detection of sixty-six cancers of

the bronchi, stomach, and pleura. The growth in outside cases is due chiefly to a great increase in the number of consultations sought; requests came from forty-one states and twenty-two foreign countries during the past year. Animal experimentation has also shown a healthy increase. This growth, together with a marked increase in the number of graduate students working in the laboratory, has fully justified increasing the residents from one to three and adding Professor Raffaele Lattes to the permanent staff.

The anticipated removal of the laboratory from its present quarters to the fourteenth floor of the Institute of Cancer Research and the approaching retirement of Dr. Arthur P. Stout as Surgical Pathologist of the Presbyterian Hospital at the end of June, 1951, have required considerable time and attention from the laboratory staff in order that the transitions may take place without disturbing the progress and usefulness of the laboratory.

Professor Virginia K. Frantz has continued her valuable work in undergraduate instruction and as President of the New York Pathological Society. In the laboratory she has been concerned chiefly with the study of thyroid disease; more particularly with the attempt to evaluate the use of radioactive iodine in the treatment of thyroid cancer. With the help of a grant from the American Cancer Society and a surgical resident assigned to the study, it has been possible to carry on an extensive program of clinical research which will provide valuable experience in the care of patients with thyroid cancer. This work was presented before the American Goiter Society meeting in Houston, Texas, March 10, 1950. In addition, with the assistance of the surgical resident staff a study of all cases of chronic thyroiditis was undertaken and a preliminary report of our findings was presented at the Annual Convention of the Medical Society of the State of New York in New York City, May 11, 1950. There is also a complete review of all cases of nontoxic nodular goiter in progress.

Professor Lattes, besides his manifold teaching assignments, has interested himself especially in investigation of the effects of ACTH on healing by histochemical techniques in collaboration with Dr. J. Wallace Blunt, Jr., of the resident staff, Professor Edward L. Howes, and Professor Charles A. Ragan and his coworkers in the Department of Medicine. He has also continued his studies of tumors of the aortic body and other paraganglionic structures. Professor Stout continued his studies of various groups of neoplasms, with emphasis upon those of the soft tissues.

Professor Howes has continued his studies in other fields aiming at better understanding of the fundamental changes that control the healing and regeneration of tissues. With Mr. Bernard Cooperman, a fourth-year medical student, he has studied the effects of triazolopyrimidine on delaying epithelialization of experimental wounds. The dose required has been studied and experiments are being carried out to elicit the exact mechanism involved. A

report on the work was given at a meeting of the Medical Society of Presbyterian Hospital and at Memorial Hospital. With the collaboration of Dr. Charles A. Findlay data was published to show that edema did not interfere with the regeneration of the fibrous tissue scar and that a low potassium content of muscle did not markedly influence the regeneration of the connective tissue. Dr. Findlay also published microscopic studies to show stages in lung healing after segmental resection and pleural healing after a portion is removed.

Under a United States Public Health Service grant for the investigation of carcinoma of the stomach, transplants of mucosa made in the presence of carcinogens have yielded some adenomatous neoplastic tumors that microscopically appeared to be malignant. A "stock pile" of these tumors is now being accumulated to attempt again to make successful transplants.

In April, 1950, Professor Margaret R. Murray terminated her activities as secretary to the Tissue Culture Association, a post she has served in with distinction since 1946. She continues as lecturer in the course for instruction of responsible investigators in principles and techniques of tissue culture (sponsored by the National Cancer Institute) given this year at the Mary Imogene Bassett Hospital in Cooperstown, N. Y. Professor Murray is also a member of the regional committee for the International Congress of Cell Biology.

Her studies continue on the structure and function of isolated nerve cells, with special emphasis on Nisel substance and myelin. In the course of this work, formation of myelin *in vitro* has been reported for the first time. Professor Murray has also continued her study of skeletal muscle, using the isolated, intact, uninnervated fiber, devoid of end-plates, as test object for various drugs affecting membrane potentials and contractility.

With Professor Erwin Chargaff of the Department of Biochemistry, Professor Murray has investigated the specific action of meso-inositol in inhibiting the colchicine effects on mitosis. Rat fibroblasts *in vitro* afford an excellent test object for these and other compounds whose course of action on isolated cells can be observed and recorded at high magnification. These studies have been supported by grants from the American Cancer Society and the Damon Runyon Memorial Fund. The compilation by Gertrude Kopech, under Professor Murray's supervision, of a comprehensive, classified bibliography of the published research in tissue culture over the last fifty years, involving some 15,000 references, is approaching completion.

In the laboratory of surgical bacteriology, research on bacitracin has continued under the direction of Professor Frank L. Meleney. Clinical results following the combined use of bacitracin and penicillin, in cases in which penicillin alone has failed to eradicate the infection, have shown that the remarkable synergistic action of these antibiotics *in vitro* also operates *in vivo*. Professor Hans T. Clarke of the Department of Biochemistry has directed

further work on chemical problems. An exhibit was set up on "Bacitracin Therapy in Surgical Infections" at the Clinical Session of the American Medical Association in December, 1949, in Washington, D. C.

The studies in cooperation with Professor J. Lowry Miller of the Department of Dermatology on the evaluation of acriane chloride in the treatment of pyogenic infection of the skin have been completed. Evaluation of the same material as a preoperative skin antiseptic are continuing under a grant from the Abbott laboratories. A joint project with the Department of Obstetrics and Gynecology is also in progress under the direction of Dr. Charles S. Matthews and Professor Charles Lee Buxton. Mrs. Beatrice Luotto is studying the bacteriologic flora of the endocervix and preparing cultures and filtrates for use in determining the effect of the flora on human sperm.

In October, 1949, Dr. John D. MacLennan began a study in the laboratory of surgical bacteriology on the production of fibrinolytic and proteolytic enzymes of certain strains of pathogenic aerobic bacilli, in an effort to determine whether substances might be found which would assist in a more rapid separation of slough and more rapid wound healing in severely burned patients.

Professor Arthur H. Blakemore, while continuing his clinical studies on portal hypertension, directed a study conducted by Dr. Archibald MacPherson (Rockefeller Fellow from Edinburgh) and Dr. Robert Nabitoff to determine the fate of preserved *vena cava* grafts when used to bridge defects in the dog's aorta. More recently he has been assisted by Dr. Allan Gammeltoft (Scandinavian-American Fellow from Copenhagen), who worked in the Department from September 1, 1949, to June 30, 1950, in cooperation with Professor Stanley E. Bradley of the Department of Medicine on measurement of hepatic flow in patients with portal hypertension, a program in which Dr. MacPherson had earlier taken part.

In the same field, Professor Deterling, supported by a grant from the New York Heart Association, has initiated a long-term study of the fate of preserved homologous aortic grafts. Active in the work have been Dr. Claude C. Coleman, Jr., a Fellow of the National Heart Institute of the United States Public Health Service since September 1, 1949, and Dr. Mary S. Parshley, who had intensive training in tissue culture work with Professor Henry S. Simms of the Department of Pathology. This work has been planned to dovetail closely with a clinical program related to the establishment of a vessel bank at Bellevue Hospital. A special laboratory has been equipped to perform carefully controlled tissue culture studies of various types of preserved vessel segments before and after implantation in animals.

Dr. Robert B. Hiatt and Professor Charles A. Flood, of the Department of Medicine, together with their co-workers, have continued to expand their coordinated studies of patients with ulcerative colitis. A number of physiologic studies on animals and patients under varying conditions of emotional stress



have been carried out. At the same time, an extensive program has been developing under the guidance of Dr. Gertrude Gottschall in an attempt to evaluate the possible role of disturbances of proteolytic enzyme activity, especially lysozyme, in ulcerations of the intestine; the program follows suggestive studies previously reported from the laboratory by Dr. William L. Lehman, Dr. John F. Prudden, and Professor Karl Meyer, of the Department of Biochemistry. A laboratory for enzyme study has been set up and preliminary work has been done which suggests that lysozyme activity is more varied in source and quantity than originally thought. This work has been aided by a United States Public Health Service grant to the Department of Psychiatry, supplemented by direct grants from the United States Public Health Service to this Department, and by the Latin-American Fund for Gastrointestinal Research.

Study of the patterns of electrical potentials in the intact human stomach (the Electrogastragram) is being continued by Dr. Edmund N. Goodman and Dr. Irwin A. Ginsberg. The earlier work in this field has recently been confirmed and these investigators are now, with improved equipment, obtaining more complete records of the electrical as well as the mechanical behavior of the normal and the diseased stomach. New manifestations of gastric physiology are being uncovered and studied in a large group of cases. It is hoped that the facts established in this work will serve to further knowledge, both of basic gastric physiology and of disease states of the stomach. This work has been supported by the Rothschild Research Gift.

The metabolism unit has continued to function, not only as a research laboratory of unusual productivity, but also as an invaluable adjunct to the skillful handling of patients with severe disturbances of fluids, electrolytes, and nutrition. Professor Sidney C. Werner of the Department of Medicine has completed the joint study of caloric intake in relation to nitrogen balance and weight loss after surgery, and has begun study on the effects of cortisone and ACTH in thyroid dysfunction. In conjunction with the first of these projects, Professor Habib is continuing his studies on the preparation of fat emulsion suitable for intravenous use. Dr. Randall, having completed the first phase of his work on low sodium states in surgical patients, continues his studies of total electrolyte balance and is preparing to relate these to shifts in total body water. A study on the value of administration of phosphate ion with intravenous amino-acid has been completed. In addition, Professor Habib has continued his studies of methods of nutritional support for patients suffering from portal hypertension secondary to liver disease, and has also collaborated with Professor Papper and Professor Bradley in their studies of renal function in relation to anesthesia and operation.

The metabolism unit was the creation of Professor Lockwood. The costs of the structural changes necessary to bring it into being were accepted by the

hospital at his suggestion, and the support of the laboratory has been carried since its inception by generous grants to Professor Lockwood from the United States Public Health Service. A group has now been brought together which will carry on the broad study he envisioned, one that has already resulted in much practical benefit to patients as well as stimulating insight into a fuller understanding of the mechanisms of human adaptation to surgical intervention.

On August 9, 1949, the Blood Bank completed its tenth year of operation. Its growth is witnessed by the fact that in its first full year, 1940, there were 1,811 donors and 1,904 transfusions, whereas in 1949 there were 10,825 bloods collected and 11,354 transfusions. Transfusion reactions have decreased from 11.8 percent in 1940 to 5.2 percent in 1949, with the percentage of chills declining from 2.8 to 1.9.

During the year, studies were started by J. Huston Westover, of the fourth-year class, on the collection of blood in 5 percent glucose solution with heparin instead of sodium citrate as an anticoagulant. In those cases showing sodium retention, where massive transfusions are needed at operation, heparinized blood may prove to be superior. For this work Mr. Westover received the Borden Award.

The research activity of the residents has continued vigorously. Mention has been made of the work of Dr. Samuel R. Powers, Jr., and Dr. Hugh F. Fitzpatrick in circulatory studies on patients during anesthesia, and of Dr. Blunt in association with Professor Howes. In particular, Dr. Robert D. O'Malley, who leaves us on July 1st for practice in Holyoke, has continued his work in blood "sludging," begun a year ago, and has been active in studying, in co-operation with Dr. Frumin of the Anesthesia Service, the mechanism of post-operative shock after cyclopropane in relation to intravenous fluid administration. Dr. Herbert Volk is continuing the studies begun by Dr. J. Roy Smith on the electrical activity of the bowel. Dr. Alfred Jaretski has begun a study on the relationship of Vitamin E to a decrease in antithrombin titer post-operatively, as a means of preventing postoperative venous thrombosis. Dr. Douglas G. Tompkins has continued his studies on blood volume determination, using the Evans blue dye; Dr. Richard C. Britton is coordinating a study of terramycin in surgical infections.

More than eighty meetings outside of the city were attended by members of the staff during the year. Thirty-seven members published fifty-one papers on clinical and experimental subjects. In addition, two books and one monograph are at present in preparation by members of the Department.

## DEPARTMENT OF UROLOGY

Professor GEORGE F. CAHILL, Executive Officer

The Department reports the return to duty of Professor John N. Robinson, following a year of absence due to illness.

The undergraduate curriculum of the year has functioned on the contracted schedule established at the beginning of the year. Further experience will be necessary in order to evaluate the time allotted to the needs of teaching.

The program of graduate education on the residency level has continued the same as the previous year. Problems for investigation have been assigned to the various residents. Dr. Robert F. Gehres read a paper on further investigation of the chemical solution of urinary stones before the American Urological Association and was awarded the second prize for original research by that Association. Dr. James C. Monteith read a paper, written in collaboration with Professor George F. Cahill, before the American Association of Genito-Urinary Surgeons on the use of Dibenamine and Nor-epinephrine in Pheochromocytomata. Both of these investigations were aided by the Albert and Mary Lasker Foundation, Inc. Further studies on the chemical solution of urinary stones are in process; they are conducted by Dr. James C. Monteith, with Dr. Samuel Raymond of the Department of Bacteriology. A report is in preparation by Dr. Ralph J. Veenema on the reactions of various intravenous iodides for secretory urological X rays.

Professor John N. Robinson has resumed his activity with investigations of the problems of sterility and human reproduction. Professor George W. Fish has been investigating the results of the action of large doses of steroids on different phases of prostatic carcinoma. Doctor John K. Lattimer has kept up his active research in newer methods of the treatment of urinary and genital tuberculosis. He read several papers on the subject during the year and introduced a special technique which was shown in an exhibit in Washington. He also has continued his weekly meetings with the resident training program. Dr. Meyer M. Melicow made a comprehensive study of interstitial cell tumors of the testis and reported his findings. He also studied sarcomas of the urinary tract and adjacent structures and presented a paper in this field. Newer pathological states of the prostate have been described and reported from his studies on glands in the Department collections. He has continued his investigations in adrenal pathological states and these have been reported in conjunction with Professor Cahill.

Dr. Harry Seneca continued his studies on the normal intestinal flora of adults. He also established new facts relating to the metabolic changes and intestinal changes in children subject to transplantation of ureters into the intestine. He also reported on the change in intestinal bacteria associated with various diseases of the intestinal tract, the effects of various antibiotics upon

these bacteria, and the effects of antibiotics on the intestinal flora in transplantation of the ureters into the intestine. He has continued his experiments on the cultivation of bacteria and protozoa in a cellophane dialyzing sac as devised by Seneca and Graff. He has demonstrated a homologous growth inhibitory factor in *Trypanosoma cruzi* and *Leishmania donovani*. He also experimented on the bactericidal and bacteriostatic properties of Lactobacillus milk covering a wide range of pathological and nonpathological bacteria and protozoa. During the year he has studied production of cortisone or cortisone-like compounds *in vitro* from slices of various tissue. He is continuing this very interesting investigation with the cooperation of Dr. Eric Ellenbogen of the Department of Biochemistry. A newer method of growing tissue cells, including the adrenal, is under study.

With other departments, Professor Cahill has continued his studies on adrenal pathological states, has participated in cancer conferences during the year at Denver and Atlanta, and has presented papers before a number of medical societies on various urological studies.

## MEDICAL LIBRARY\*

Professor THOMAS P. FLEMING, Medical Librarian

Since the close of the war, the published literature of medicine and its allied sciences has been increasing with explosive force. The problem of selecting the important and the useful has become very great. The production of texts and monographs in medicine and science in the United States has reached an all-time high. Last year there was an increase of 10 percent over the year before, and a 46 percent increase over that of 1944. The journals also have increased rapidly in number. Over 1,800 are currently received. There are two hundred other journals sufficiently in demand and borrowed on interlibrary loan to justify additional subscriptions.

As the volume of the published literature has increased, the demand for it has grown. The number of interns and residents in the hospital has steadily increased. In 1944 there were 128, in 1950, 214. Similarly, the demand for literature has been broadened by the number of personnel employed on research projects, and the number of projects since the war has expanded very greatly. These individuals use primarily the literature of the basic sciences, chemistry, physics, and biology.

These factors combined with the pressing problems of a curtailed budget and limited space have placed an unprecedented strain on the library's ability to meet the demands of the faculty of medicine and of our affiliated institutions.

During the past year the budget situation became acute. In order to live

\* For complete report see the Report of the Director of Libraries, Columbia University.

within the current personnel budget, three clerical positions were dropped and the vacant post of Assistant Librarian was down-graded to that of a library intern. The budget for books and periodicals was reduced for the current year and the use of certain funds withdrawn. The Library had only 40 percent available of what it had spent the year previously. By selling second and third copies of back files of journals, and by internal readjustments which favor the present at the expense of the future, we have managed to eke out the year.

Certain measures cannot fail to jeopardize the effectiveness of the library and lower the standards of service. For example, periodical titles most in demand were restricted from circulation. Unless the Library possesses second copies of these journals, it means that more and more individuals must plan to spend a portion of their day in the library consulting pertinent literature. Previously, it was possible to take publications to the laboratories and to the offices.

It seems evident that considering all factors involved, additional income must be procured, or unquestionably there will be a wholesale cancellation of subscriptions to journals which will seriously hamper certain functions of the Medical Center.

The pressing problem of space was again eased temporarily by opening a third annex, located on the South Property and made available by the Presbyterian Hospital. Shelves have been erected to hold approximately thirty thousand volumes. Books and monographs up to 1910 in the basic sciences and up to 1920 in the clinical sciences have been shelved there, as well as the volumes up to 1940 of annual reports of institutions, publications of state departments of health, collected reprints, and the catalogues of medical, dental, and nursing schools. The entire Library is in the process of being shifted to take up the slack. With the shift almost completed, the space vacated by the thirty thousand volumes has completely disappeared. A daily messenger service procures such early publications as are desired. So far the rate averages about twenty a week.

A step was taken which is designed to make the Library facilities more freely available than has been the case. Previously the Library was open only to personnel from Columbia University, Presbyterian Hospital, and other closely affiliated institutions. By action of the Trustees of Columbia University, qualified professional individuals may be granted the use of the Library upon payment of a fee. This fee is designed to be a realistic one and yet non-competitive with that charged by the New York Academy of Medicine. Full library service is available at \$25 per month.

In an effort to live within the budget, the hours were shortened during what is known as intersession periods in the academic programs. This brought such a storm of protest, that it seems unwise to save money in this way.

The Bibliographic Service has continued to support the work of a number

of projects in the Center. During the year 20,435 references were supplied for 141 projects representing the work of 94 investigators. In the coming year the service will be limited to those individuals possessing academic rank in the University.

Respectfully submitted,

WILLARD C. RAPPLEYE, M.D.

*Dean*

*June 30, 1950*











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